Developing evidence-informed, employer-led workplace health

Final report

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Contents

Structured summary

What do we want to know?

We sought to understand whether workplace health programmes (WHPs) are effective for improving health and business outcomes, and to identify the characteristics of WHPs that are thought to influence their success. To address these issues, we undertook a systematic review of three sources of evidence: systematic reviews examining intervention effectiveness; research on stakeholders' views and experiences; and key workplace health policy documents.

What did we find?

We identified 24 systematic reviews of WHPs which examined statistically the impact on a variety of outcomes, including mental health, weight management, absenteeism (and its costs), work ability and job stress. The reviews demonstrated that workplace health interventions are effective in improving health and business outcomes, and that the magnitude of effects on those outcomes is modest.

Evidence from 10 views studies and 17 policy documents were integrated with evidence from systematic reviews to identify key characteristics of WHPs. Four characteristics were identified across each of the three evidence sources, suggesting that they could be implemented to good effect: financial commitment, ease of uptake, accessibility, and structures to promote social support. Five characteristics were identified in systematic reviews and views studies but have yet to be addressed by policy recommendations; these included the extent of policy integration, the importance of the implementer's role within the company, the content of an intervention, whether the intervention is tailored or individualised, and issues related to acceptability.

Four characteristics were identified as important in views studies or policy documents but had not been examined in systematic reviews, suggesting a need for future evaluation. These included managerial support, organisational support, channels of communication and the provision of tailored advice. The provider approach and the use of web-based technologies were identified in views research only. Each of these characteristics can be implemented in a variety of ways, suggesting creative possibilities for the ways in which businesses could integrate them into employer-led workplace health.

What are the conclusions?

The findings suggest that employers can derive benefits from establishing WHPs, both for the business and with respect to their employees' health. Interventions that are supported by organisational policy, focus their content on specific health issues and engage employees have been shown to be effective and are supported by stakeholder research and policy documents. Employers may find additional benefit if they also include specific characteristics related to the context in which a WHP intervention takes place, is implemented or is received by participants. The impacts of many WHP characteristics on health and business outcomes have yet to be evaluated and should be integrated into future WHP intervention evaluations.

How did we get these results?

Comprehensive searching of electronic databases and websites was carried out to identify the three relevant datasets. Using framework synthesis, we combined evidence from the

systematic reviews, views studies and policy documents by using a framework of characteristics potentially influencing workplace health effectiveness. Data analysis themes were then organised to produce tabular and narrative summaries of key characteristics of WHPs to produce an overall narrative.

Executive summary

Background

People's health is affected by the circumstances in which they live; their health, in turn, impacts on these environments. This includes the circumstances in which people work. For example, people's health may impact on the work environment if they enter into work with pre-existing health conditions or challenging social conditions; conversely, the conditions of people's working lives may lead to ill health due to work-related injuries, stress, anxiety and depression, substance abuse, cardiovascular disease or cancer. The workplace thus presents an ideal arena in which supporting good health can be integrated into people's lives. Workplace health[1] provides an opportunity to promote health and wellbeing amongst employees, prevent a loss of productivity and profit and, for communities, provide a sense of solidarity and equity.

The effectiveness of any workplace health intervention may be influenced by a variety of factors, including differences in the focus of the intervention, its methods of delivery, or the populations targeted. Current NICE guidance suggests a wide range of potential influencing factors, including management style, organisational justice, employees' roles and degree of decision control (National Institute for Health and Care Excellence 2015). In order to encourage businesses to promote workplace health, there is a need to build an evidence-informed view on the effectiveness of different types of workplace health programmes and to identify the factors that influence successful engagement with and outcomes of those programmes. This evidence base will potentially inform any efforts to encourage employers to assess and develop their workplace health programmes, in order to improve the health of their workforce and to support good practice.

Aims

The aim of this review was to synthesise evidence on the characteristics of effective workplace health interventions. We sought to answer an overarching question:

What are the important characteristics of successful workplace health interventions?

by posing five sub-questions:

1. What is the evidence available from systematic reviews for the effectiveness of workplace health interventions in improving health outcomes?
2. Does evidence available from systematic reviews indicate that workplace health interventions improve 'business outcomes' such as productivity, presenteeism/absenteeism and reduced sick time?
3. What evidence is available from systematic reviews regarding the relationship between evaluated processes of workplace health intervention implementation and health or 'business' outcomes?
4. What are people's views about the barriers to and facilitators of effective workplace health?
5. What are the characteristics of successful/unsuccessful workplace health interventions suggested by current policy?

Methods

In order to inform understanding of successful workplace health programmes, a two-stage research process was undertaken. The first stage, described herein, comprised a systematic review of research and policy evidence to address the above research questions. The second stage, to be

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[1] 'Workplace health' in this report refers to workplace health programmes or initiatives.

documented in a separate report, will comprise stakeholder consultation informed by this review, to develop potential future assessments by employers of their own 'good practice'.

Identifying and describing the evidence

Comprehensive searching was carried out to identify three potentially relevant datasets: systematic reviews examining the effectiveness of workplace health; research on stakeholders' views and experiences of workplace health ('views' studies); and policy documents. A variety of search sources was utilised. These included contact with key informants, electronic citation database searches, and websites. Study selection, quality assessment and data extraction were conducted using the specialist software EPPI-Reviewer (Thomas et al. 2010). Two reviewers assessed included studies, with disagreements resolved by a third reviewer where necessary. After the application of eligibility criteria, 24 systematic reviews, 10 stakeholder views studies and 17 policy documents were included in the review. All included studies were coded according to the year of publication, the main health issue of interest, the target population characteristics and the intervention characteristics. Codes specific to each research question were also applied to each dataset. This work supported the production of a systematic review that describes the key characteristics of studies investigating workplace health interventions.

Appraising and synthesising the evidence

The quality of systematic reviews was assessed using AMSTAR criteria (Shea et al. 2007) and views studies were assessed using a modified brief qualitative research quality assessment tool (Shepherd et al. 2010). We used 'framework synthesis' (Carroll et al. 2011; Oliver et al. 2008) to combine evidence from the systematic reviews, views studies and policy documents. We applied an initial framework of characteristics potentially influencing workplace health effectiveness (Wierenga et al. 2013) that had been used in previous research and then extended and adapted this framework in the light of the evidence from the studies in our review. Data extracted from each source of evidence were examined and grouped to derive common themes. Themes were organised to produce tabular and narrative summaries of key characteristics. A draft list of characteristics supported by evidence of effectiveness, views research and recommendations from policy reports were used to inform the development of any potential assessment of workplace health programmes.

Findings

What types of intervention are effective?

Twenty-four systematic reviews of workplace health interventions were identified and we synthesised their findings to address the first three sub-questions on whether workplace health interventions improve health outcomes and business outcomes, and whether there is a relationship between workplace health intervention implementation and health or business-related outcomes.

The findings suggest that the majority of workplace health programmes are effective and produce modest beneficial effects in terms of both health and business outcomes. Whilst the outcomes can only be described as modest, they may represent good value for money. Overall, the reviews of effectiveness were of moderate to high methodological quality. When looking at whether specific intervention characteristics influence workplace health success, findings suggested that no type of intervention (e.g. obesity prevention, physical activity, smoking cessation) was more effective than any other in improving outcomes. No discernible pattern was found in relation to the systematic reviews quality 'AMSTAR' rating.

What are the key characteristics of workplace health according to systematic reviews, views studies and policy documents?

We compared the key characteristics of workplace health programmes identified in the systematic reviews, the views studies and the policy documents against our original conceptual framework and then against each other. Only four characteristics were identified across each of the three sources (systematic reviews, views studies and policy documents). Nine characteristics were identified in

two of the three sources of evidence and five characteristics were identified in at least one source, suggesting gaps for future policy development and research.

Characteristics reported across each of the three sources of evidence

Four characteristics that were either demonstrated or thought to influence success were reported across all three evidence sources; these were:

1. Financial commitment on the part of the organisation;
2. The ease with which an intervention can be taken up by participants;
3. The accessibility of an intervention for participants; and
4. The structures available for participants to be supported.

Characteristics reported in two different evidence sources

Four characteristics were identified in policy documents and views studies as being important but have not yet been evaluated. These were managerial support, channels of communication, organisational support and giving of advice.

Five characteristics were identified in the systematic reviews and views studies but have yet to be discussed in policy documents. These were the integration of workplace health into corporate policy, the intervention provider's job position, the provision of a tailored/individualised intervention, the content of an intervention and the acceptability of an intervention.

Characteristics reported within a single evidence source

Finally, five characteristics were identified in only one source, suggesting a need to further examine whether they are appropriate to incorporate as key characteristics of workplace health programmes. Analyses within the systematic reviews identified that workplace health outcomes were moderated by continuous improvement policies, intervention duration/dose and employee engagement. However, these characteristics were not mentioned in any views studies or policy documents as being important to workplace health intervention success. The importance of the intervention implementer's approach and the use of Internet technologies were discussed in views studies; however, these have yet to be evaluated in systematic reviews or integrated into policy documents.

These comparisons of characteristics across different types of evidence suggest which characteristics are robust, i.e. supported by multiple types of evidence. But each of the characteristics was described in different ways, suggesting the potential for any one characteristic to be evidenced differently across organisations. The most frequently occurring characteristics are described in more detail below.

Characteristics of the socio-political context

None of the three sources of evidence identified the importance of any socio-political factors, such as the compatibility of the programme with societal developments or a competitive business environment.

Characteristics of the organisation

Managerial support

The synthesis of views studies (n=10) and policy reports (n=14) suggest that 'managerial support' is a key mechanism for the successful implementation of workplace health. Characteristics relate to all levels of managerial roles/responsibilities and are applicable to companies of different sizes and scales. Key points have been highlighted:

- **Managers could encourage staff** to participate in workplace health, e.g. web-based health programmes, blood pressure screenings, weight management or mental health initiatives, or could support employees' career progression.

- **Managers could provide ongoing support and 'follow up'**: follow up, such as reminders and communication about workplace health, is perceived as leading to ongoing commitment from staff.

- **Managers or employees could take on the role of promoter**: a more 'hands on' approach is thought to lead to successful integration of workplace health schemes/incentives.

- **Motivation by managers** appears to lead to successful engagement from staff.

- **Promoting the workplace message**: when managers successfully promote the value and benefits of workplace health, employees feel encouraged and valued.

- **Managers need support and training to be supportive**: additional support and tailored training for managers (e.g. wellbeing schemes) may be useful.

- **Understanding and implementing a work/life balance**: greater efforts are needed by senior management to understand and implement workplace health into working hours.

- **Focus on the wellbeing and welfare of employees**: managers could foster employee responsibility, allowing them to have more job control, encouraging career progression and consulting staff on jobs changes.

- **Managers as positive role models**: policy reports recommended that managers set a good example by taking a positive, non-dismissive approach to workplace health.

Channels of communication

Evidence from policy documents (n=3) and views studies (n=7) suggest that organisations can support workplace health by utilising existing channels of communication on health and wellbeing. The following recommendations can be drawn:

- Publicise local health services: the workplace may offer an important site for awareness raising and referrals to public health programmes offered in the community.

- Link workplace health activities to existing company services: workplace health could be integrated into existing employee assistance and occupational health services.

- Integrate information about health checks: the content should combine the workplace health topic being addressed and companies' existing polices on health and safety.

- Build links: it may be helpful to build connections and engage with external organisations and communities as part of workplace health tool development.

Organisational support

Stakeholder views studies (n=3) and policy documents (n=14) suggest that the presence and/or absence of organisational support at an executive or directorial level is an important factor when delivering workplace health programmes. The following observations were noted:

- **Embed workplace health programmes**: interventions may work better if embedded into existing organisational strategies, as this was perceived to indicate that the health and wellbeing of staff was an integral component of the structures and policies in the organisation.

- **Organisations need to take a holistic/direct interest**: it was perceived as important that companies supporting their employees take an interest in 'their health' and not just general 'fitness to work'.

- **The directors and senior leadership team should be involved in workplace health**: workplace health may benefit from approval and implementation by senior employers of the company during programme initiation so that it fits into the day-to-day functions of the business.

- **Organisations have a role in supporting the infrastructure of workplace health throughout the company**: organisations may benefit from providing support via communication across units and provision of staff assessments to help planning.

- **Organisations can support workplace health by engaging 'champions':** supporting the investment in a 'champion' role could pay off over the longer term, where that person can eventually hand over control to staff.

Financial commitment

To endorse workplace health initiatives, policy documents (n=4), views studies (n=3) and one systematic review identified the need to ensure sufficient resources, materials and equipment. Three means of achieving this were suggested:

- **Commitment to resources, financial support and sustainability:** identifying and assigning budget and staffing resources to workplace health initiatives may demonstrate senior leadership commitment. Commitment in resources can build the groundwork for culture change and support sustainability of the initiatives. One systematic review reported improved outcomes when employees were paid during the intervention.

- **Establishing the financial case for workplace health:** a lack of resources and/or budget can undermine successful implementation of workplace health programmes.

- **Investing in evidence-based interventions:** policy documents (n=4) recommend a governmental role in funding research and supporting evidence-based workplace health.

Policy integration

Two views studies and one systematic review identified policy as a key characteristic of effective workplace health:

- **Integrate workplace health into existing workplace policies:** people preferred a continuous workplace health policy approach, and greater improvement in outcomes were observed when this happened.

Characteristics of the implementer

Implementer approach

Five views studies suggested that the approach of the implementer made a difference to participants' engagement with workplace health. The general consensus from employees was that implementers need to have a level of professionalism, be knowledgeable about the topic and use positive methods to engage participants:

- **'Down-to-earth' approach:** a relaxed, friendly approach should be taken in order not to alienate employees, particularly when broaching sensitive topics.

- **Previous experience with health issues helps:** workplace health may be taken more seriously by programme recipients if the implementer has an educational background in or training on the health issue being addressed.

- **A good balance between listening and encouraging:** if participants feel that they are being 'talked down to' rather than experiencing a participatory approach, this may become a barrier. Power imbalances between the implementer and participant need to be explicitly addressed, especially if the implementer is a work colleague or manager.

- **Approach of peer advisers:** peer advisers were perceived as most helpful when they were approachable, delivered information consistently, adhered to the training and acted with an overall degree of professionalism.

Implementer's job position

Evidence from views studies (n=4) and a systematic review (n=1) suggested that successful delivery of workplace health was influenced by the implementer's job position:

- **A workplace health 'champion':** could support or help to lead the strategy overall and encourage fellow workers to take part, and could improve outcomes.

- **Potentially inappropriate/unsustained support of senior managers by junior staff:** when delivering workplace health, it was preferable that the appropriateness of junior

staff providing intervention support to senior managers was assured; likewise, junior staff were thought to need additional support to do this.

- **Peers or external implementers**: which are most appropriate to provide the intervention may be dependent on the sensitivity of the topics. Whilst one systematic review found that implementers who were company employees were more effective than those external to the company, other evidence suggested that peers might not be appropriate when dealing with sensitive topics. Thus, selection of providers should reflect the nature of the health programme being delivered and to whom.

- **Employee assistance programmes**: workplace health initiatives should not be part of employee assistance programmes, and managers need to ensure that programmes are not tied to job performance or appraisals.

Characteristics of the intervention programme

Ease of uptake

Views studies (n=6) policy documents (n=3) and one systematic review suggested that planning and careful implementation could help to increase uptake:

- **Choosing the right time**: employees found it easier to participate in programmes when there was a degree of flexibility, when sessions were provided during work time, allowing for shifts and break times, and when there was time to get into a 'new routine' after a holiday or break from work.

- **Fitting round employee's lifestyles/external time constraints**: it was thought that for workplace health to work successfully, management needed to consider external influences such as family and other commitments outside work.

- **On-site facilities**: On-site schemes were perceived as important for positive and ongoing commitment from employees. One systematic review found that compared to off-site schemes, on-site schemes were associated with an increase in effectiveness.

- **Alternative 'quiet time'** sessions could also be considered as part of workplace health.

- **Intervention methods**: employees felt that they engaged more with health schemes when a 'tick sheet approach' was implemented, enabling them to monitor their progress or thoughts on the programme. Dissemination of health information through email or web links also received positive feedback.

- **Develop social supports and wide-reaching programmes**: social support may benefit managers and employees, by allowing them to implement, recruit and/or participate in workplace health programmes.

Tailored/individualised intervention

Views studies (n=3) and one systematic review suggested that workplace health programmes were more acceptable to participants where they were personally tailored by type of health advice, training schedules or information. However, this level of tailoring may need to vary, depending on the size and scale of the businesses.

- **Detailed, targeted, tailored information**: providing tailored information to staff could see benefits in the form of staff committed to the schemes and better outcomes.

- **Health devices**: administering devices such as pedometers also adheres to the principle of tailored targeted health. Each employee would have access to their health data so that they could see improvements in fitness levels.

- **Contact with the intervention provider**: increased participation by employees has been vastly improved when regular contact with an intervention provider has been allowed. This builds up individualised relationships with participants (managerial and employees).

Internet/web/PC/text

Views studies (n=4) indicated that the use of technology supported engagement in workplace health initiatives. In particular, people found that:

- **Using a 'tick box approach' via the PC** was a user-friendly health management tool for older employees (45-68 years).

- **Text messages and email reminders** were considered to be positive and attractive features, and not intrusive, for participants in an e-health scheme.

- **Use of computer applications**: these were found to be beneficial, e.g. a health manager tool used by older employees (45-68) for self-monitoring in a workplace setting.

- **Health information via the intranet**: health information posted via the intranet had a high volume of hits, highlighting the value of sharing current news articles or health information.

Content

The views of participants (n=4) who were engaged in workplace health programmes provide a view on the format and the type of activities they preferred to engage in and when, and this is supported by evidence in three systematic reviews. These included:

- **Using strategies to market workplace health programmes**: material which was detailed, targeted and eye-catching was a positive way to motivate employees.

- **Workplace health going beyond health and safety issues**: men felt that it was more important to focus on the health topic (e.g. prostate cancer) than health and safety issues.

- **Focus on specific health matters and provide health materials**: although emailing and web information were perceived as effective, information booklets and diaries were also considered to be very helpful tools, as were interventions targeting specific health concerns compared to generalised approaches.

- **Make appropriate modifications to physical activity workplace health interventions**: greater effectiveness was observed in outcomes when the content of physical activity interventions was matched to individual performance and capabilities, including accessible forms of activity in the form of walking.

Advice

Views studies (n=3) and one policy document suggested a need for workplace health programmes to provide helpful and tailored forms of advice and information, via different channels of communication. For example:

- **Providing advice**: receiving tailored advice and encouragement may boost morale.

- **Disseminating advice**: providing advice via booklets and/or diaries was seen as a successful tool for engaging employees.

- **Appropriate use of external versus peer providers**: although peer providers were not discouraged, due to proximity in the working environment, participants would be less likely to seek their support, suggesting that employers may want to consider peers from external sources.

Intervention duration/dose

Three reviews provided insight into the role of intervention duration or dose on the potential success of workplace health interventions. Findings suggest that it might be useful to:

- **Consider intervention frequency and duration when designing workplace health programmes**: increased frequency of contact was found to improve outcomes in one systematic review, a finding supported in a views study that suggested that regular contact with an intervention provider improved participation. However, the length of

interventions may need to be monitored, longer programmes (more than 12 weeks) were associated with both positive and no effects.

Characteristics of the recipient

Acceptability

All ten views studies and one systematic review provided evidence on the acceptability of workplace health interventions:

- **Ensure an appropriate location:** when initiatives were organised within the workplace, they were considered highly favourably and more likely to succeed by the employees.

- **Consider participants' age:** workplace health may be more effective for young people, as two reviews observed a reduction in effectiveness for older employees.

- **Think about gender-targeted interventions:** programmes focused only on men's health gained a positive response from male employees, achieved high levels of active participation and provided a platform for men to discuss personal health issues. However, reviews examining the influence of female gender on outcomes found no significant relationship, while another found a trend for a detrimental effect. While no views studies examined preferences for female-specific workplace health initiatives, they did suggest that some men preferred gender-specific interventions.

- **Positive environment and participation:** when efforts were made by management to create an environment that promoted and permitted participation, without it being a hindrance to work, employees were more likely to engage.

- **Intervention integration:** when workplace health programmes were initiated by senior management and integrated into working structures, this could lead to greater acceptability by employees, encouraging them to take part.

- **Reducing barriers to participation:** these include allowing time for employees to participate, motivating and supporting employees who show an interest, prioritising the health of employees, using the workplace as a location for initiatives, providing relevant training for exercise equipment, installing facilities such as shower rooms to encourage healthy behaviour (walking or cycling to work), and providing better facilities for health screenings (private booths).

Accessibility

Views studies (n=7) policy documents (n=5) and one systematic review addressed accessibility. This was apparent in two ways: physical access to the health programmes at work and how programmes were scheduled into the working day. The studies showed what influenced employers and managers:

- **Location and environment:** participants valued having health programmes situated at work, and the provision of on-site physical fitness centres was significantly associated with higher effects in the systematic reviews.

- **Quality of equipment and training:** uptake was thought to be encouraged by easy access to on-site gym/exercise equipment, attractive green spaces around the worksite, and gym training to help users improve their confidence.

- **Time to participate:** to ensure successful and ongoing participation, managers needed to examine how this could fit into different work patterns, such as shift work/part-time work, demands and obligations, or limited free time.

Structures to promote social support

Without social support from peers and higher levels of management, it was suggested that the workplace health programmes would be less likely to succeed. Views studies (n=5), policy documents (n=3) and one systematic review discussed the support structure provided to employees, and whether pre-existing support, or support implemented within the initiative, greatly influenced the participants' perceptions.

- **Tailored gender-specific support:** studies focused on men only showed that gender-specific social support networks were vital to an open discussion about men's health (e.g. prostate health promotion).

- **Workplace social supports:** studies highlighted the need for developing robust social support networks. One review examined the impact of group intervention format on effects, finding a positive trend. Views studies also suggested that offering group services and committing to an intervention as part of a group was a beneficial characteristic.

- **Transparency:** interventions taking place in an academic setting showed a collegial support for fellow participants, where open discussion of the health programmes occurred, creating a platform for support and encouragement.

Discussion

Strengths and limitations of the review's methods

The strength of this review is that it draws on a broad evidence base, including rigorously reviewed effectiveness research, in order to address the multi-dimensional nature of workplace health interventions (e.g. from examining interventions in one business to multi-level interventions administered regionally and offered across multiple worksites). However, this breadth also generates uncertainties when attempting to ascertain if *all* interventions are effective in *all* settings with *all* participants and whether perspectives from one set of stakeholders for one particular workplace health intervention are transferable to other stakeholder groups. The search was successful in capturing relevant evidence on effectiveness, stakeholder views and policy documents to answer the review questions. For the systematic reviews, we undertook a comprehensive search going back 20 years. However, the views studies were limited to the past five years, to account for the likelihood of stakeholder perspectives changing more rapidly over time.

Framework synthesis proved to be a useful analytic method. A previously developed conceptual framework of workplace health processes helped to organise the findings into different levels. Most of the original framework's characteristics were addressed by the literature, and new understandings of these processes were discovered, further contributing to the framework.

Strengths and limitations of included studies

This analysis provides moderately robust evidence that most of the workforce-identified key characteristics of successful workplace health interventions are appropriate, and could have a positive influence on outcomes. It is important that the strengths and limitations of the studies and the synthesis methods are also considered.

Several limitations were identified in each of the three datasets used to examine the characteristics of successful workplace health interventions. These include a lack of evidence in the following areas:

- Evaluations of interventions with small- to medium-sized businesses, and studies accessing the views of stakeholders in these settings.

- Systematic reviews on health topics falling outside of physical activity and mental health interventions, such as healthy eating, cancer prevention and cardiovascular risk.

- The relative costs of different interventions and the cost-effectiveness of interventions.

- 'Business outcomes' of relevance to stakeholders; for example, stakeholders may view lower staff turnover or lower business health expenditure costs as more important than 'presenteeism' or 'absenteeism'.

- Longer-term outcomes of both interventions and views studies to indicate the sustainability of workplace health interventions and changes in stakeholders' views over time.

- The perspectives of managers, senior managers and owners/board of directors: a key group of stakeholders who hold considerable decision-making authority over workplace health in their workplace to identify whether the identified characteristics are also shared by these stakeholder groups.

Conclusions

The overarching conclusion from the research literature and policy documents is that organisations as a whole, and individual stakeholders (directors, managers, workers), need to invest in workplace health in order for it to be successful. The findings from this report also raise key points that have implications for business stakeholders and researchers.

Implications for businesses

The three sources of evidence synthesised in this review identified several characteristics of workplace health that have implications for business organisational structures and support. These include:

- Making a financial commitment to workplace health. This could include training, the use of highly skilled intervention providers, incentives for employees, and providing committed work time for workplace health.

- Embedding workplace health interventions into the workplace, e.g. integrating workplace health into policy, the setting and the work day, and making them available to all stakeholders, so that workplace health is a cultural norm expected to be offered and to be taken up by everyone.

- A need for both formally and informally organised structures for social support. This could be peer-to-peer as well as manager-to-worker support.

- Ongoing monitoring, with views being sought or outcomes measured more than once during the intervention in order to demonstrate whether an impact (positive or negative) is occurring.

- Integrating workplace health into existing policies and systems to increase sustainability; the appropriate use of policies to assess needs and evaluate progress, rather than to penalise people, could better monitor the success of an intervention.

Implications for intervention providers

Specific characteristics were also identified that related to intervention design and delivery. These include:

- Tailoring interventions to what is best for both recipients and for the organisation, e.g. identifying which factors make it acceptable to all stakeholders (e.g. appropriate location, target audience) to help ensure its success.

- Ensuring that the 'right' person is providing the intervention. Businesses designing a workplace health strategy are advised to engage all stakeholders in order to determine how best to involve peers, and to examine the impact (if any) of the intervention on the provider's job position, approach and training/support, linking it back to the impact of an intervention.

Recommendations for future research

Recommendations for future research have emerged from the review. These are:

- Incorporating economic evaluations into workplace health outcome evaluations to enable the identification of the relative cost-effectiveness of different workplace health programmes.

- Evaluating workplace health interventions in small- and medium-sized businesses.

- Ascertaining the views of senior managers, managers, business owners and board members on what factors influence workplace health interventions and on what fosters a successful workplace health intervention.

- Examining the extent and impact of stakeholder engagement in the design, delivery and evaluation of an intervention, and whether that engagement is to lead, collaborate, consult on or merely be informed about an intervention.

- Asking all stakeholders (i.e. workers, managers and providers) what constitute important 'business outcomes'.

- Exploring the views of participants' in successful workplace health interventions to understand what factors influence participation and change in health outcomes.

1 Background

Worldwide, workers comprise half of the population; the workforce is ageing and people are working into older age (Bajorek et al. 2014; Kim 2012). In the UK, life expectancy is increasing, but people's health is not improving at the same rate. Modifiable risk factors, such as smoking, alcohol and obesity could account for this unbalanced relationship and can be addressed in the workplace setting (Black 2008). The conditions of people's working lives, which are closely intertwined with their physical and psychosocial health, can lead to ill health due to work-related injuries, stress, anxiety and depression, substance abuse, cardiovascular disease or cancer (Burton 2010). For working-age adults, the workplace presents an arena in which to promote health and integrate healthy measures into lifestyles.

Ill health impacts on people's working lives: it is estimated that 175 million working days were lost due to ill health in the UK in 2006 (Black 2008). This leads to a loss of productivity and profit for business, and for communities a loss of solidarity and equity (Hillier-Brown et al. 2014; Kaspin et al. 2013; van Dongen et al. 2011). Far more sickness is reported amongst those in 'unskilled' compared with 'professional' occupations (Black 2008; Burton 2010). Women are at higher risk of experiencing ill health at work (World Health Organization 2007), and more people are being employed with long-term health problems and disabilities (Bajorek et al. 2014). Such inequalities present challenges in providing workplace health[2] suited to the needs of any specific workforce.

Definition of workplace health

Addressing the health of the working population is critically important: the workplace must not only prevent ill-health, but also promote health and wellbeing (Black 2008). Workplace health is thus concerned with efforts to improve, maintain and protect the health of people at their place of work. The promotion of workplace health was defined in the Luxembourg Declaration by an EU network of organisations in 2007 to reflect this holistic approach:

> Workplace Health Promotion is the combined efforts of employers, employees and society to improve the health and wellbeing of people at work … WHP is a modern corporate strategy which aims at preventing ill-health at work (including work-related diseases, accidents, injuries, occupational diseases and stress) and enhancing health-promoting potentials and wellbeing in the workforce. (European Network for Workplace Health Promotion 2007: p.1, 2)

Workplace health can be seen as an activity in which:

> workers and managers collaborate to use a continual improvement process to protect and promote the health, safety and well-being of all workers and the sustainability of the workplace by considering the following, based on identified needs:
>
> - health and safety concerns in the physical work environment;
>
> - health, safety and wellbeing concerns in the psychosocial work environment; including organization of work and workplace culture;
>
> - personal health resources (i.e. those services/opportunities a workplace provides to workers to promote their health);
>
> - ways of participating in the community to improve the health of workers, their families and other members of the community. (Burton 2010: p.16)

This latter definition of the promotion of workplace health, and its underlying philosophy, will form the definition of workplace health for the current work. Its focus is on protecting healthy people from developing a disease or experiencing an injury (i.e. primary prevention). While we recognise that promoting health following disease, injury or identification of serious risk factors (i.e. secondary prevention) or helping people manage complicated, long-term health problems (i.e.

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[2] In this report, 'workplace health' is taken to mean workplace health programmes or interventions.

tertiary prevention) may be provided in the workplace setting as well, these aspects of prevention are not the focus of the present work.

Benefits and effectiveness of promoting workplace health

It has been argued that the benefits of promoting workplace health make good business sense, resulting in improved productivity, reduced absenteeism and employment costs, better products and customer service, and financial benefits (Hillier-Brown et al. 2014; Kaspin et al. 2013; Kim 2012; PriceWaterhouseCoopers 2008; van Dongen et al. 2011). These benefits, in turn, impact on the productivity and health of wider society, as worker health also influences community health (Burton 2008; Kim 2012). The relationship between productivity, economic prosperity and health is summarised in Figure 1.1.

Figure 1.1: Relationship of effective workplace health to business and society (Burton 2008)
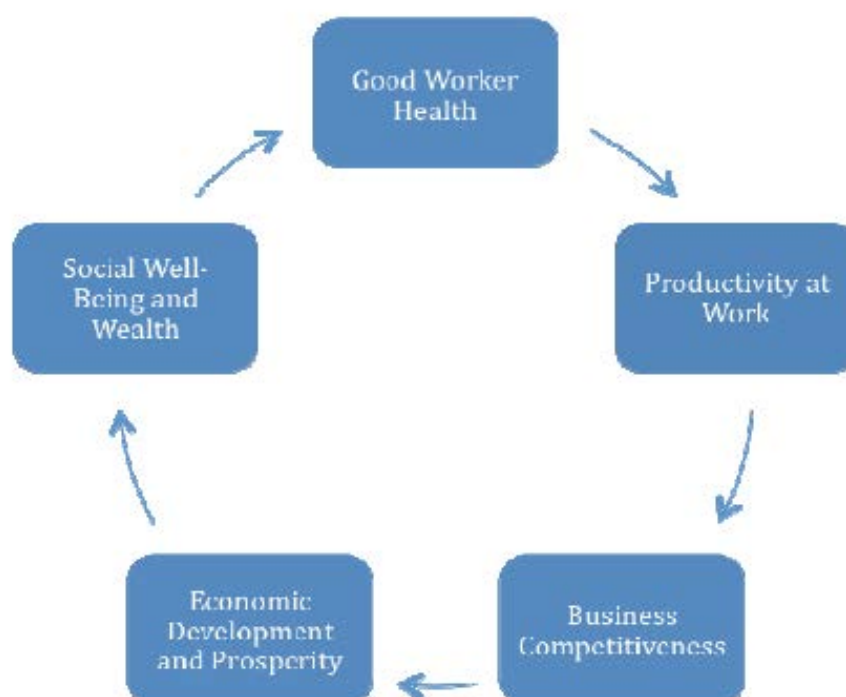
Existing evidence

Many systematic reviews have been published on the effectiveness of various workplace health activities for improving employee health and wellbeing. Searching the Cochrane Library alone, using the terms 'work site' or 'workplace' in the title elicited 35 reviews. These focused on a wide range of topics from breastfeeding promotion (Abdulwadud and Snow 2012) to smoking cessation (Cahill and Lancaster 2014). Positive clinical and cost outcomes associated with workplace health were also noted in the review by Pelletier (2005), although this evidence is now over 10 years old. A brief scoping exercise revealed that effectiveness has been examined across a variety of workplace health topics, in differing populations, and measuring a diverse set of health and social outcomes.

Characteristics of effective workplace health interventions

Potential variations in workplace health effectiveness could be due to differences in the health focus of the intervention, methods of delivery, or populations targeted. Interventions focused most often employed health education, multiple components, exercise, counselling or provision of incentives. Current UK guidance on workplace health initiatives suggests a wide range of influencing factors, including management style, organisational justice, roles and degree of decision control (National Institute for Health and Care Excellence 2007, 2008a,b, 2009a,b, 2014, 2015). In addition, workplaces can range from small-to-medium enterprises (SMEs) to large enterprises (Department for Business, Innovation and Skills 2014). Larger companies have more resources to implement specialist workplace health than do smaller companies, which may influence the type and range of workplace health activities, with a subsequent impact on effectiveness.

Research suggests that effective health promotion interventions in the workplace benefit from: employer support and involvement; worker involvement in planning, implementation and activities; focusing on a definable and modifiable risk factor of importance to employees; and tailor-made interventions (Harden et al. 1999). A more recent systematic review of workplace health programmes noted over 50 barriers and facilitators to effective health promotion interventions, including characteristics of the organisation, the implementers, the managers and the participants (Wierenga et al. 2013).

Encouraging employer-led workplace health

In order to encourage employers to promote health in the workplace, several initiatives have been implemented both nationally and internationally. Each of these requires organisations to provide evidence of workplace health promotion activities across a diverse range of areas; some of these lead to workplace 'awards'.

The Healthy Workplace Framework

The World Health Organization (WHO) introduced the Healthy Workplace Framework, which advocates framing workplace health efforts to improve physical and psychosocial health, fostering personal resources and developing ways of participating with the wider communities in which they are situated (Burton 2010).

The Healthy Working Lives Award Programme

NHS Scotland has introduced an initiative from the Scottish Centre for Healthy Working Lives to encourage employers to develop a healthier and safer workforce (NHS Scotland n.d.). To achieve a 'Bronze' award, employers can submit a portfolio demonstrating adherence to minimum health and safety requirements and can then build on this to demonstrate: reduced employee absence and turnover; improved health and safety standards; identification and prevention of stress and anxiety at work; and employee engagement to identify and address concerns. Adoption of further measures results in the attainment of a 'Silver' award, in which employers demonstrate written policies on: dealing with alcohol and drugs; attendance management; worksite injury/accident monitoring and prevention; promoting and facilitating healthy eating and physical activity in the workplace and beyond; and provision of training to managers to increase their skills and knowledge around workplace mental health support and management. Finally, a 'Gold' award is available to employers who prepare and implement a three-year safety and wellbeing strategy; evaluate their own progress and performance through benchmarking; identify and address health inequalities within their organisation; and implement one of a range of strategies focused on environmental health, mental health, community health, lifestyle checks, equality and diversity, mentoring or an organisation-initiated initiative.

The American Corporate Health Achievement Award

Other awards and projects offer more generalised ways to change the work environment. For example, the American Corporate Health Achievement Award, bestowed by the American College

of Occupational and Environmental Medicine recognises efforts in four general areas: Leadership and Management, Healthy Workers, Healthy Environment and Healthy Organization (American College of Occupational and Environmental Medicine 2014).

UK policy

In the UK, policy interest in workplace health mirrors international efforts. In October 2014, a new Health at Work Policy Unit at the Work Foundation was set up under the direction of Stephen Bevan, with support from Napp Pharmaceuticals Ltd and Bupa Investments Ltd. There are three forthcoming working papers from this unit: policy options for improving workforce health; people with fluctuating health conditions; and how initiatives can work at a local level. Their first paper, *The Way Forward: Policy options for improving workforce health in the UK*, has a number of recommendations for policy makers to stimulate progress. These include: fiscal incentives; levy systems; incentivising collaboration through local 'budget-pooling'; responsible procurement; regulation; regulation for reporting; benchmarking; and other mechanisms, including obtaining the investor's perspective, kite-marking and organisational pledges (Bajorek et al. 2014).

Against this evolving landscape, efforts are being made to encourage employers to improve the health of their workforces. The criteria used to assess any workplace health programme assessment should be based on sound evidence of impact, demonstrating that particular employer-initiated programmes can indeed improve the health of their workforce. The characteristics of these interventions will be informed by research evidence of the effectiveness of different types of interventions, lessons learned from implementation of evaluations and research on participants' experiences of workplace health, and expert consensus. These characteristics can provide a means for employers to clearly and simply assess their workplace health efforts in an objective fashion.

Aims of review

The objective of the review was to gather, assess and prioritise evidence on the characteristics of effective workplace health interventions, with a view to informing assessments of workplace health programmes. This was done in order to address the following overarching research question:

What are the important characteristics of successful workplace health interventions?

To provide evidence to address this question, two main stages of activity were undertaken:

1. evidence mapping of relevant research and policy documents;
2. prioritisation of workplace health checklist criteria.

Research questions

In order to map the research and policy evidence, five sub-questions were addressed:

1. What is the evidence available from systematic reviews for the effectiveness of workplace health interventions in improving health outcomes?
2. Does evidence available from systematic reviews indicate that workplace health interventions improve 'business outcomes' such as productivity, presenteeism/absenteeism and reduced sick time?
3. What evidence is available from systematic reviews regarding the relationship between evaluated processes of workplace health intervention implementation and health or 'business' outcomes?
4. What are people's views about the barriers to and facilitators of effective workplace health?
5. What are the characteristics of successful/unsuccessful workplace health interventions suggested by current policy?

2 Methods

Type of review

In order to map the evidence relevant to workplace health, a systematic rapid evidence assessment (SREA) was undertaken. Rapid evidence assessments typically employ systematic review methods but impose restrictions on the breadth of the search or scope, or the depth of data extraction in order to expedite the production of findings for a short policy timeline (Caird et al. 2012; Cheung et al. 2012; Ganaan et al. 2010; Gough et al. 2012).

Three types of evidence were considered most relevant to answer the review's questions. A systematic review of existing systematic reviews was undertaken to establish the effectiveness of workplace health programmes (WHPs) and provide information on factors influencing the success of such programmes. A systematic review of research on stakeholder perspectives or 'views' and a systematic review of key policy documents were also conducted to determine the characteristics of successful workplace health promotion programmes. To synthesise this evidence, the project consisted of a two-stage process as shown in Figure 2.1:

1. Stage 1 evidence mapping and synthesis (in blue)
2. Stage 2 consultation (in yellow)

Figure 2.1: Project stages
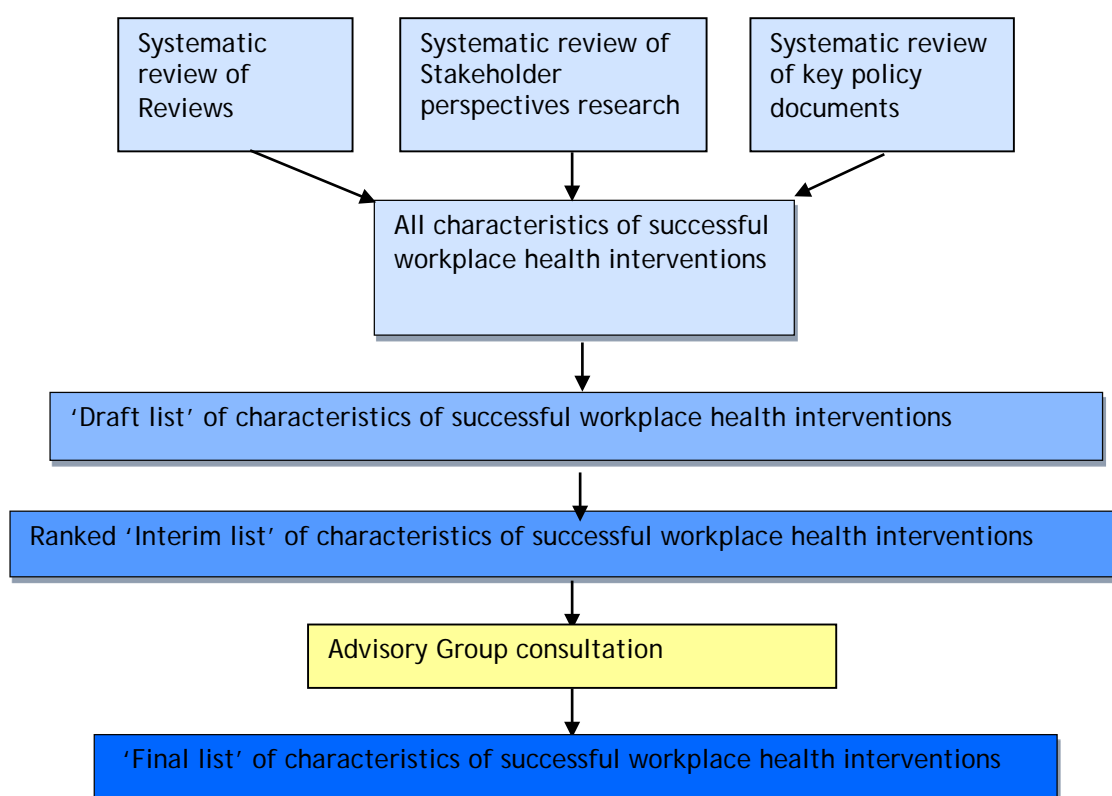
The systematic review of reviews, stakeholder perspectives and key policy documents informed the development of an interim list of characteristics thought to influence WHP success. This first stage of the project is described in this report.

Stakeholder involvement

It is desirable to involve those who will ultimately be affected by the findings of a study, for several reasons. Stakeholders provide expertise on an issue, as well as informed perspectives on relevant areas in which to focus the work. They can offer relevant suggestions for presenting research findings in an accessible way, and have the potential to communicate research findings more widely within their own networks (Rees and Oliver 2012).

Two types of stakeholder involvement were planned:

1. an Advisory Group to provide input into key decisions during the review process
2. consultation on important factors influencing successful workplace health.

Advisory Group

In close collaboration with Department of Health Research and Development (DH R&D) and the research commissioners, we discussed the initial findings from the map of reviews of research and the interim characteristics of successful workplace health promotion interventions arising from the synthesis of all three sources of evidence.

To inform a final list of successful characteristics, we aim to consult with relevant academic groups and individuals, including the Health at Work Policy Unit in Leicester, the Olympic Park Consortium, and Professors Margaret Whitehead, Matthew Hotopf, David Hunter, Nick Mays, Jennie Popay and Dr Justin Varney from Public Health England. We also plan to seek input from employer and employee organisations, including the Chartered Institute of Personnel and Development, MIND the mental health charity, ACAS the Advisory, Conciliation and Arbitration Service. This will result in a second report.

Searching

Potentially relevant citations for systematic reviews, research on stakeholders' views and policy documents were located through a variety of sources including contact with key informants, electronic citation database searches and websites.

Search strategy for electronic databases

Searches were limited to citations published between 1995 and 2015. Search strings based on a combination of free-text and database-specific terms were developed in collaboration with our information scientist. The concepts combined included: (workplace terms) AND (systematic review terms). The search strategy was developed first in PubMed and then translated using syntax suitable for other databases. The PubMed search strategy is provided in Appendix 1. Located citations were uploaded into the EPPI-Reviewer custom research software, for management of publication retrieval, coding and synthesis (Thomas et al. 2010).

The following electronic sources of systematic reviews were searched:

- MEDLINE
- DARE
- Cochrane Library
- PsycInfo
- Database of Promoting Health Effectiveness Reviews (DoPHER).

In addition to the databases above, to identify potentially relevant primary research on stakeholders' perspectives, the following electronic sources were searched back to and including 2010:

- ASSIA
- ABI Inform

- Scopus
- Business Source Premier.

Websites

Google Scholar and the King's Fund website were searched for relevant publications.

To locate policy documents that recommend or outline key characteristics of successful workplace health interventions, we searched 43 websites of health promoting organisations, bodies promoting corporate social responsibility, health departments of regional and national governments and the websites of key workplace health organisations. These included:

- World Health Organization
- UK National Institute for Health and Care Excellence
- UK Health at Work Policy Unit
- The Canadian Centre for Occupational Health and Safety
- The US Centers for Disease Control
- The American College of Occupational and Environmental Medicine.

The majority of searching was conducted on UK websites, but we visited a few government sites in the United States, Canada, Europe and Australia to make a comparison with the UK context. We also contacted a policy analyst on workplace health promotion at Public Health England to source documents. We restricted ourselves to collecting policy documents that made recommendations for action to either businesses or public sector organisations or to government. We excluded non-systematic reviews and case studies of organisations with recognised high-quality workplace health promotion interventions. This search was purposive rather than exhaustive, as we quickly found that the recommendations were similar, so the final sample of 17 documents represents a consensus of what a workplace health promotion policy should include. We searched for documents published in the last 10 years.

Citation searching

To identify policy documents, Google Scholar was searched to identify publications in which relevant documents had been cited in the past five years.

Hand searching

All issues of *The International Journal of Workplace Health Management* were searched for relevant qualitative studies concerning stakeholder views on workplace health programmes.

Key informants

Research commissioners were asked for any relevant reviews of effectiveness, research on stakeholder views about barriers or facilitators to successful implementation of workplace initiatives, and relevant policy documents discussing characteristics of successful workplace strategies.

Screening for study inclusion/exclusion

All located citations were assessed first on the basis of title and abstract. The full text of those meeting the inclusion criteria were then retrieved and assessed again for inclusion.

Eligibility criteria for systematic reviews

For systematic review citations to be included on title and abstract, studies had to:

- be published from 1995 to present

- be in English (although non-English studies were marked for future assessment as appropriate)
- describe the search strategy, inclusion criteria and quality assessment methods
- evaluate interventions delivered in a workplace setting
- report healthcare or wellbeing outcomes.

Eligibility criteria for stakeholder views studies

For research on stakeholder views to be included on the basis of title and abstract, citations had to:

- be in English (although non-English studies were marked for future assessment as appropriate)
- conducted in the UK
- be a primary study describing methods and analysis of data
- be elicited from stakeholders (i.e. policy makers, business owners, managers, workers, union members etc.)
- be about workplace health.

Studies meeting the criteria for stakeholder views are referred to throughout the report as 'views' studies.

To be included on the basis of the full report, stakeholder views studies had to additionally:

- examine stakeholders' perspectives about the barriers to, facilitators of and/or mediators of workplace health interventions
- provide descriptive or evaluative data from qualitative analyses.

Eligibility criteria for policy documents

For policy documents to be included, the full report had to:

- be published from 2010 to present
- concern workplace health
- be relevant to the UK context
- discuss barriers to and/or facilitators of effective workplace health.

Coding

All included studies were coded according to a framework created from an existing data extraction tool used in EPPI-Centre reviews (Peersman et al. 1997) and with further codes specific to the characteristics of this review. The coding tool is provided in Appendix 2. All included studies were coded according to the following characteristics:

- year of publication;
- main health issue of interest (e.g. injury prevention, mental health, obesity);
- target population description (e.g. participant characteristics such as age, gender, education, ethnicity);
- intervention characteristics (e.g. education, exercise programme).

Review-specific codes for systematic reviews

Additionally, reviews were coded according to their main characteristics of interest, including:

- number of primary studies included in the review
- primary study design(s)
- types of outcomes measured.

These characteristics are also included in the coding tool in Appendix 2.

Review-specific codes for primary studies of stakeholders' views

Primary studies of stakeholders' views were also characterised according to a set of codes derived from a comprehensive list of individual, intervention and organisational workplace health characteristics identified in previous research (Wierenga et al. 2013):

- size of business;
- type of business (e.g. industrial, commercial, service, public); and
- type of stakeholder (e.g. owner, manager, worker, shareholder, union representative).

The coding tool for stakeholder views research is provided in Appendix 3.

Review-specific codes for policy documents

Policy documents discussing the characteristics of successful interventions were coded according to:

- document source (i.e. the organisation commissioning and/or producing the document)
- the purpose/context of document (i.e. why it was written).

We used the report *The Way Forward: Policy options for improving workforce health in the UK* by Bajorek et al. (2014), published by the Work Foundation, to structure a coding tool (see Appendix 4). This document provided an analysis of the barriers to workplace health promotion as well as some recommendations to organisations and government. We were confident that the comprehensiveness of this study made it suitable to be a basis for our coding. Both researchers coded the documents, creating a code for each new recommendation. Then we created frequency tables to analyse the content and context of the documents. We combined the results in a narrative.

Any new characteristics not identified by the coding framework described above were added as they emerged from the data in the policy documents, using framework synthesis methods (Carroll et al. 2011; Oliver et al. 2008).

Risk of bias assessment

Risk of bias in systematic reviews

Systematic reviews were assessed according to AMSTAR criteria (Shea et al. 2007). Reviews were assessed on 11 criteria; a score of 11 represents a review of the highest quality.

Categories of quality were determined as follows:

- low (score 0 to 3);
- medium (score 4 to 7);
- high (score 8 to 11).

The AMSTAR tool is presented in Appendix 5.

Risk of bias in primary studies of stakeholder perspectives

Primary studies of stakeholder perspectives were assessed for risk of bias according to a previously developed and modified brief qualitative research quality assessment tool (Shepherd et al. 2010) as shown in Appendix 6.

Synthesis of evidence

Evidence arising from the systematic reviews, stakeholder research and policy documents was amalgamated using framework synthesis methods (Carroll et al. 2011; Oliver et al. 2008). An initial conceptual framework of characteristics influencing workplace health promotion effectiveness was adapted from an existing framework developed by Wierenga et al. (2013), into which we incorporated key characteristics of process evaluations extracted from previous multiple EPPI-Centre reviews (Peersman and Oliver 1997). Data extracted from each source of evidence (analyses within reviews, studies of stakeholder views and policy documents) were examined and grouped to derive common themes, taking into consideration the applicability and transferability of interventions carried out in non-UK settings (Burchett et al. 2011). Themes were organised to provide tabular and narrative summaries of key characteristics. A draft list of characteristics supported by both effectiveness evidence and policy were created for the consultation exercise outlined in section 2.2. Each criterion was listed with the source and nature of the evidence from which it was derived. This 'draft list' will be presented to the Advisory Group at a face-to-face meeting and a list for wider online consultation produced.

Quality assurance

To strengthen the application of these methods, quality assurance procedures were followed. Two reviewers developed searches in collaboration with our information scientist. Two reviewers screened the same selection of retrieved references, then met to cross-check their screening results and establish agreement on the use of inclusion and exclusion criteria. Once an inter-rater reliability of more than 90% was established, reviewers screened references independently. Disagreements or queries on inclusion were referred to a third reviewer as needed. The same quality assurance process was applied to the coding of studies. Two reviewers assessed reviews for risk of bias and met to discuss and agree ratings, with disagreements resolved by a third reviewer where necessary.

3 Systematic map of reviews of effectiveness

This chapter is intended to address the following research questions:

1. What is the evidence available from systematic reviews for the effectiveness of workplace health promotion interventions in improving health outcomes?
2. Does evidence available from systematic reviews indicate that workplace health promotion interventions improve 'business outcomes' such as productivity, presenteeism/absenteeism and reduced sick time?
3. What evidence is available from systematic reviews regarding the relationship between evaluated processes of workplace health intervention implementation and health or 'business' outcomes?

Included systematic reviews

A total of 246 systematic reviews were identified. The proportion of reviews focusing upon workplace health promotion as defined in section 1.1 above is in Figure 3.1.

Figure 3.1: Number of reviews addressing workplace health promotion
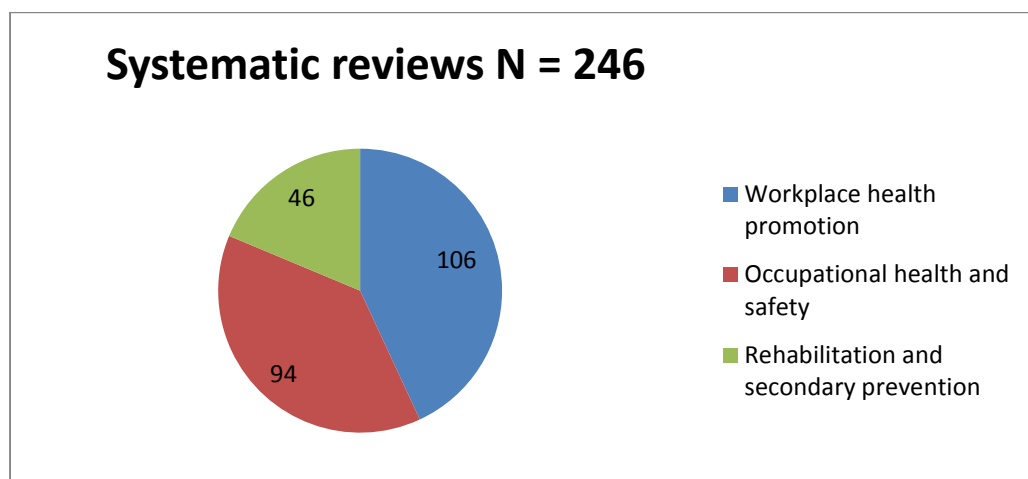
We do not consider further those reviews investigating occupational health and safety interventions (n = 94), or reviews concerning workplace secondary prevention or rehabilitation in those with pre-existing illness or injury (n = 46). These reviews represent a resource for possible future research.

Overview of workplace health effectiveness

Of 106 included reviews, 24 (22.6%) conducted meta-analyses providing a pooled effect size estimate of the effectiveness of workplace health promotion interventions.

Direction of effect

Figure 3.2 provides an overview of the effectiveness of workplace health promotion. In general, workplace health promotion interventions appear to produce beneficial effects. Forty-eight reviews reported a statistically significant beneficial effect of workplace health, 20 a non-significant beneficial effect and one review found no difference between the control and intervention groups following exposure to workplace health. One review reported a non-significant detrimental effect, and a significant detrimental effect was reported in three reviews. Van Dongen et al. (2011) reported increased medical and absenteeism costs in their review (AMSTAR rating 9/11) of workplace health programmes aimed at improving nutrition and/or increasing physical activity; the intervention consisted of a (self)assessment educational/informational, behavioural and exercise

environment, and incentivised components. Hutchinson and Wilson (2012) found a significant negative effect of workplace health interventions upon participants' body weight when pooling the results of two studies in their review with an AMSTAR rating of 4 out of 11.

The above results must be interpreted with caution due to the possibility that any one primary study may have been included in more than one review (see section on 'Publication bias' below). Further, this does not give an indication of the size of effect in individual primary studies or reviews.

Figure 3.2: Overview of effectiveness of workplace health promotion reviews (all outcomes)

Direction of effect for 73 outcomes in 24 systematic reviews

Category	Value
Significant beneficial effect	48
Non-significant beneficial effect	20
No difference	1
Non-significant detrimental effect	1
Significant detrimental effect	3
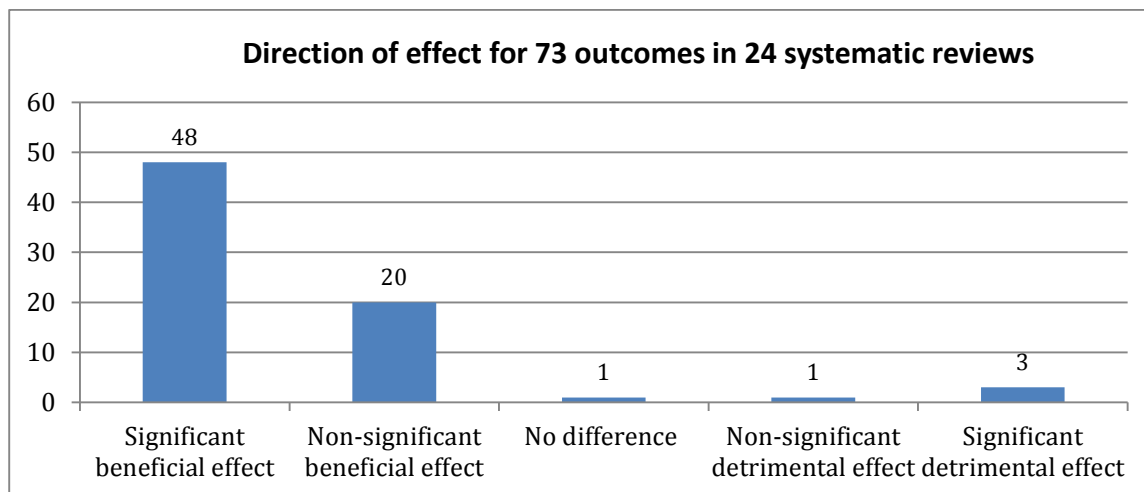
Magnitude of effect

Effect sizes represent a simple means of quantifying the difference between two groups - the intervention and control/comparison group. The further the effect size deviates from zero (or one where the effect size is a ratio rather than a mean difference), the larger the effect size.

Although Figure 3.2 provides information regarding the direction of effect of workplace health interventions, it gives no indication of the magnitude of the effect sizes for these interventions. As can be seen in Figure 3.3, a stem and leaf plot of 14 standardised mean differences (SMDs) from the systematic reviews presenting overall pooled SMDs or odds ratios, shows that effect sizes for workplace health interventions appear to be modest in this sample. SMDs lie between 0.05 and 0.3 in 13 of 14 (93%) cases. A SMD of around 0.2 may be considered a small effect, 0.5 a medium effect and 0.8 a large effect (Cohen 1988).

Where overall pooled effect sizes were not reported, effect size was represented by the largest available subgroup (by intervention type or outcome). Odds ratios were converted into SMDs, but effect sizes reported as risk ratios or average decreases (e.g. kilograms of weight lost) are not shown. It should be noted that overall pooled effect sizes may be derived from reviews with primary studies in common, i.e. one or more trials may be included in one or more reviews. Further, these represent a highly heterogeneous set of interventions focused on different health issues, and undertaken across diverse contexts. Therefore, an average SMD across reviews is not presented.

Figure 3.3: Stem and leaf plot showing distribution of overall SMD effect sizes only, n = 14

```
0.0 | 5   5   6   7
0.1 | 2   5   6   6   6
0.2 | 2   4   4
0.3 | 0
0.4 |
0.5 | 3
0.6 |
0.7 |
```
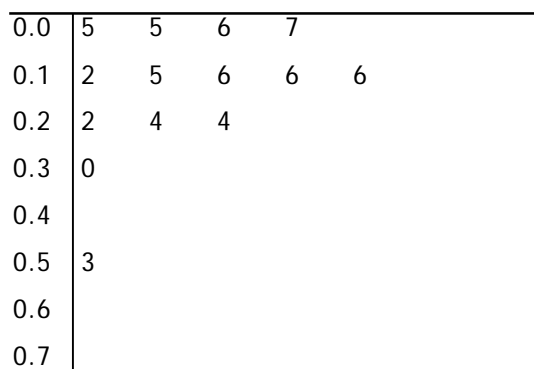
Figure 3.4: Stem and leaf plot showing distribution of SMD effect sizes only (all outcomes), n = 38

```
0.0 | 5   5   6   8   8   9
0.1 | 2   2   3   3   5   5   6   6   7   9
0.2 | 1   1   2   3   3   3   4   4   4   6   8   9   9   9
0.3 | 0   2   3   7
0.4 | 2
0.5 | 3   7
0.6 |
0.7 |
0.8 |
0.9 | 8
```
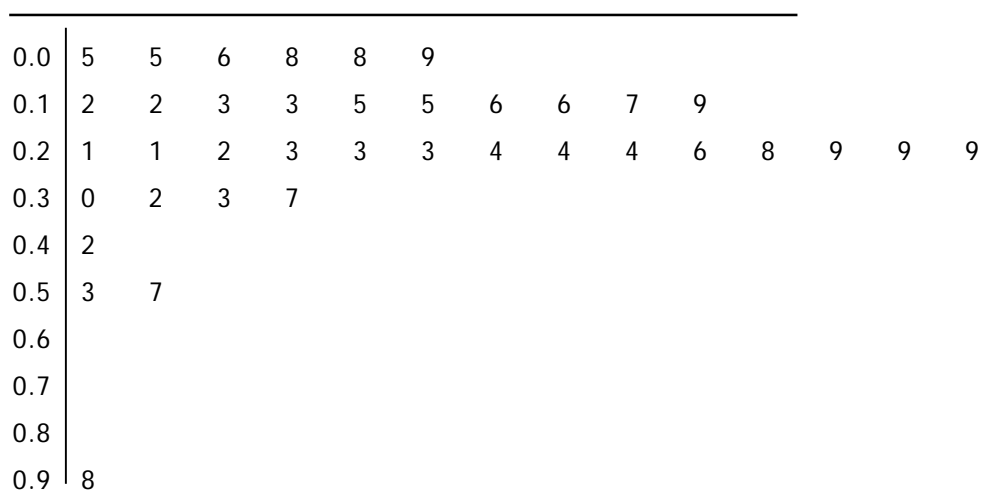
Figure 3.4 shows a stem and leaf plot of 38 standardised mean differences (SMDs) from the systematic reviews. These 38 SMDs represent pooled results for all subgroups presented within reviews (e.g. by intervention type or population type) rather than overall pooled effect sizes. Odd ratios have been converted into SMDs. Other effect size statistics, including risk ratios, cost data or average decreases (N = 35) are not represented. Sample populations from individual trials are represented more than once in this set of effect sizes (i.e. effect sizes are presented employing data from the same populations for different outcomes). Therefore, an average SMD is not presented.

Again, effect sizes for workplace health programmes appear to be modest, with 31 of 38 SMDs (82%) lying between 0.05 and 0.3. One SMD, relating to the effectiveness of workplace physical activity interventions for reducing diabetes risk (0.98) represents an outlier: Conn et al. (2009) note that the effect sizes for diabetes risk showed significant substantial heterogeneity and suggest that the findings should be considered tentative given the small number of studies (6) reporting this outcome.

Publication bias

The above plots are both lopsided with no negative effect sizes below zero (i.e. no reviews presenting pooled analyses suggesting a detrimental effect of workplace health programmes). This may be because workplace health programmes have a consistently positive effect. Alternatively, the absence of negative findings may be due to publication bias. This operates where comprehensive systematic searches fail to find negative and non-statistically significant findings because such studies are less likely to be published. Systematic reviews affected by publication bias are likely to overestimate positive results, and at the level of a review of reviews, it is difficult to assess the extent to which publication bias is in operation. Seven reviews with pooled effect sizes

assessed the likelihood of publication bias (Conn et al. 2009; Hutchinson and Wilson 2012; Richardson and Rothstein 2008; Rongen et al. 2013; Smedslund et al. 2004; Tan et al. 2014; Verweij et al. 2011), of which four (Conn et al. 2009; Hutchinson and Wilson 2012; Rongen et al. 2013; Smedslund et al. 2004) found results suggestive of publication bias.

Outcomes

A total of 73 health and business outcomes were found in the 24 systematic reviews presenting pooled effect sizes as shown in Table 3.1. The top three outcomes for health appear to be Mental health, Weight and Physiological/Smoking measures, and for business outcomes, Absenteeism, Absenteeism costs, Healthcare costs, Work ability and Job stress.

The direction of effect for all health and business outcomes is presented in Appendix 8.

Table 3.1: Number of systematic reviews reporting effects for different outcome types

	Significant beneficial effect	Non-significant beneficial effect	No difference	Non-significant detrimental effect	Significant detrimental effect
Health outcomes					
% body fat	1	1			
BMI	3				
Diabetes risk	1				
Fat intake	1				
Fruit and veg consumption	3	1			
Health	1	1			
Healthcare use	1				
Mental health	4	5			
Musculoskeletal symptoms	1				
Physical activity	2	1			
Physical fitness	3				
Physiological (e.g. blood pressure)	4		1		
Smoking	3	2			
Sexual risk behaviour	2	2			
Sexually transmitted disease	1			1	
Voluntary counselling/ testing	1				
Weight	5				1
Well being/quality of life		2			
Financial/business outcomes					
Absenteeism	4	1			
Absenteeism costs	1	1			1
Healthcare costs	1	1			1

	Significant beneficial effect	Non-significant beneficial effect	No difference	Non-significant detrimental effect	Significant detrimental effect
Job satisfaction	1				
Job stress	2				
Productivity	1				
Work ability	1	2			

Business outcomes

Positive effects of workplace health programmes were presented in relation to absenteeism and job stress, but two reviews provided conflicting evidence regarding absenteeism costs.

Table 3.2 provides detailed information regarding eight reviews with pooled effect sizes in relation to absenteeism, productivity, job stress and job satisfaction. Health care costs are not presented in this table due to contextual differences regarding health care provision in different countries.

Of seven reviews providing pooled effect sizes in relation to absenteeism, three (Aniol 2001; Parks and Steelman 2008; Rongen et al. 2013) demonstrated statistically significant beneficial effects (SMDs 0.12, 0.30 and 0.21 respectively). One review showed a non-significant but positive reduction in sick leave and improvements in ability to work (Kuoppala et al. 2008). One review with an AMSTAR rating of 4 out of 11 indicated a positive return on investment in terms of absenteeism costs (Baicker et al. 2010) whereas another review with an AMSTAR rating of 9 out of 11 did not (van Dongen et al. 2011). Two reviews (Conn et al. 2009; Montano et al. 2014b) demonstrated beneficial effects of workplace health programmes (SMDs 0.15, 0.37 respectively) in terms of reducing self-reported job stress. Richardson and Rothstein (2008) also presented results in relation to the effect of occupational stress management intervention programmes upon absenteeism (SMD = −0.059) and productivity (SMD = 0.703), but did not provide samples sizes or confidence intervals for their effect size estimates, which are not considered further here, and are thus not listed in Table 3.2.

Table 3.2: Business outcomes: absenteeism, workability/productivity, job stress and job satisfaction

Review [AMSTAR score out of 11]	Absenteeism	Work ability/ productivity	Job stress	Job satisfaction
Aniol (2001) [5]	Work absences (days) k = 5 N = 18,541 **d = 0.12 (95% CI: 0.09-0.14)** Q = 8.74			
Baicker et al. (2010) [4]	Absenteeism costs per employee per year, in 2009 US$ k = 22 N = 7,465			

Review [AMSTAR score out of 11]	Absenteeism	Work ability/ productivity	Job stress	Job satisfaction
	Average saving: $294 Average cost $132 Average return on investment: 2.73			
Conn et al. (2009) [7]	Work attendance k = 9 d = 0.05 (95% CI: −0.19-0.29) I^2 = 0.89		k = 3 d = 0.53 (95% CI: −0.15-1.22) I^2 = 0.91	
Kuoppala et al. (2008) [7]	Sick leave k = 10 N = 11,322 RR = 0.79 (95% CI: 0.59-1.07)	Work ability k = 2 N = 327 RR = 1.21 (95% CI: 0.77-1.89)		
Montano et al. (2014b) [9]			Self-reported job stress k = 7 d = −0.37 (95% CI: −0.71 to −0.04) I^2 = 0.84	
Parks and Steelman (2008) [10]	k = 10 N = 7,705 d = −0.30 (95% CI: −0.48 to −0.22)			k = 7 N = 2,480 d = 0.42 (95% CI: −0.05-0.80)
Rongen et al. (2013) [10]	k=12 N = unclear d = 0.21 (95% CI: 0.03-0.38)	Productivity d = 0.29 (95% CI: 0.08-0.51) Work ability d = 0.23 (95% CI: − 0.07-0.52)		
van Dongen et al. (2011) [9]	Average return on investment Non-randomised studies = 325% (SD 497%)			

Review [AMSTAR score out of 11]	Absenteeism	Work ability/ productivity	Job stress	Job satisfaction
	Randomised controlled trials = −49% (SD: 84%)			
k = number of studies; d = standardised mean difference; Q = homogeneity test; I^2 = proportion of variance between effect sizes due to study level differences; RR = relative risk; CI = confidence intervals; N = total sample size. **Statistically significant beneficial effects in bold.**				

Mental health outcomes

During discussions with business leaders, some interest was expressed in the effectiveness of workplace health interventions in improving mental health or preventing mental ill health.

Table 3.3: Mental health outcomes: anxiety, depression, mental wellbeing, mood, psychological outcomes

Review [AMSTAR score out of 11]	Anxiety	Depression	Mood/mental wellbeing	Psychological outcomes
Conn et al. (2009) [7]			Mood k = 12 D = 0.13 (95% CI: −0.05-0.31) Q = 14.9 I^2 = 0.26	
Kuoppala et al. (2008) [7]			Mental wellbeing *All interventions* k = 7 N = 2,113 RR = 1.07 (95% CI: 0.77-1.49) *Psychological interventions* k = 5 N = 2,060 RR = 1.03 (95% CI: 0.73-1.45)	
Martin et al. (2009) [8]	Anxiety k = 7 N = 161	Depression k = 11 N = 339		Composite measures k = 13 N = 1,233

Review [AMSTAR score out of 11]	Anxiety	Depression	Mood/mental wellbeing	Psychological outcomes
	d = 0.29 (95% CI: 0.06-0.53) Q = 3.93	**d = 0.28 (95% CI: 0.12-0.44)** Q = 7.25		d = 0.05 (95% CI: −0.03-0.13) Q = 15.55
McLeod (2010) [6]				Post-intervention ES = 0.90 Follow-up ES = 1.17
Richardson and Rothstein (2008) [6]				Occupational stress management interventions **d = 0.53 (95% CI 0.36-0.69)** Q = 202.6 I^2 = 0.73
Tan et al. (2014) [10]		*All interventions* k = 10 **d = 0.16 (95% CI: 0.07- 0.24)** Q = 6.56 I^2 = 0% *CBT interventions only* k = 6 **d = 0.12 (95% CI: 0.02-0.22)** Q = 5 I^2 = 0%		
k = number of studies; d = standardised mean difference; Q = homogeneity test; I^2 = proportion of variance between effect sizes due to study level differences; RR = relative risk; CI = confidence intervals; N = total sample size; CBT = cognitive behavioural therapy. **Statistically significant beneficial effects in bold.**				

Four reviews examined workplace health interventions focused specifically upon mental health (Martin et al. 2009; McLeod 2010; Richardson and Rothstein 2008; Tan et al. 2014), listed in Table 3.3. Martin et al. (2009) examined the effects of health promotion interventions in the workplace upon depression and anxiety symptoms. McLeod (2010) conducted a review of the effectiveness of workplace counselling. Richardson and Rothstein (2008) carried out a meta-analysis to determine the effectiveness of stress management interventions in occupational settings. Finally, Tan et al. (2014) focused upon research examining work-based universal prevention of depressive illness. As McLeod (2010) did not report the methods used for meta-analysis, we cannot have confidence in the findings of this study and therefore the results are not considered further here.

Conn et al. (2009) conducted a meta-analysis of the effect of workplace physical activity interventions on a number of outcomes (including mood) and Kuoppala et al. (2008) examined the effect of workplace health promotion interventions (including psychological interventions) on a number of outcomes (including mental wellbeing).

As can be seen from Table 3.3, statistically significant beneficial effects were reported in three reviews: Martin et al. (2009) for anxiety, d = 0.29 (95% CI: 0.06-0.53) and depression, d = 0.28 (95% CI: 0.12-0.44); Richardson and Rothstein (2008) for psychological functioning, d = 0.53 (95% CI 0.36-0.69); and Tan et al. (2014) for depression following exposure to workplace health interventions, d = 0.16 (95% CI: 0.07-0.24) or cognitive behavioural interventions, d = 0.12 (95% CI: 0.02-0.22).

Conn et al. (2009) reported a non-significant effect of workplace health upon mood: d = 0.13 (95% CI: −0.05-0.31). Kuoppala et al. (2008) found little effect of interventions in general: RR = 1.07 (95% CI: 0.77-1.49) or psychological interventions in particular: RR = 1.03 (95% CI: 0.73-1.45) upon mental wellbeing.

Intervention types

Most systematic reviews included primary studies that evaluated a variety of intervention types. In some cases, workplace health programmes were described as 'multicomponent' without further specification. Interventions classified as 'other' included access to resources, changes to company regulations or policy, risk assessment and participatory research. The intervention approaches employed in the primary studies included within the systematic reviews are described in Figure 3.5 and Appendix 7. No discernible pattern was found in relation to intervention type and either direction of effect or AMSTAR rating.

Figure 3.5: Intervention types included within workplace health promotion programmes.
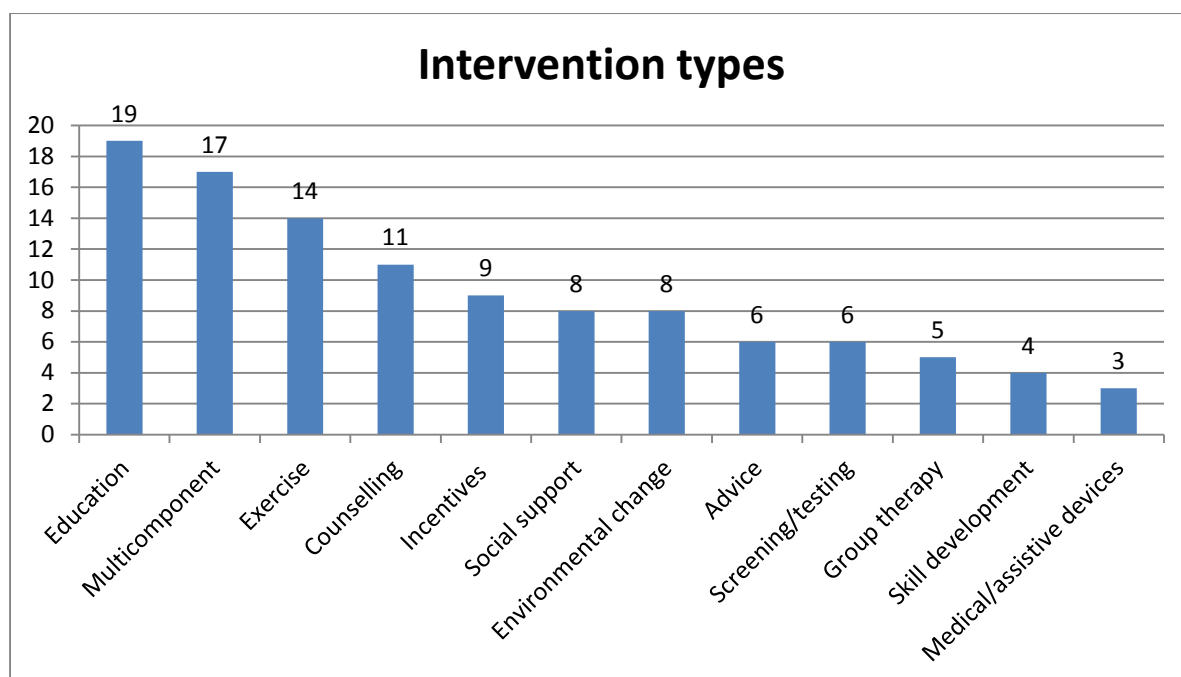
Factors influencing workplace health programme effectiveness

Some workplace health programmes are more effective than others. The following section relates to those factors or characteristics which modify the effectiveness of workplace health programmes and is organised using the Wierenga et al. (2013) framework. Table 3.4 shows the nine reviews which examined factors potentially related to programme effectiveness (Abraham et al. 2009; Conn et al. 2009; Dishman et al. 1998; Hutchinson and Wilson 2012; Kremers et al. 2010; Montano et al. 2014a; Parks and Steelman 2008; Richardson and Rothstein 2008; Rongen et al. 2013).

Characteristics of the organisation influencing outcomes

Organisational characteristics, such as financial commitment, moderated outcomes across two reviews. Increased effectiveness was associated with workplace health programmes that paid participants during the intervention compared to employees engaging in programmes outside of work-paid time (Conn et al. 2009). Two characteristics related to aspects of policy: when workplace health programmes occurred alongside organisational policy change (Conn et al. 2009) or included formative evaluation (Kremers et al. 2010) as part of a continuous workplace health policy approach, greater effectiveness was observed.

Characteristics of the intervention impacting on outcomes

Five reviews identified a range of intervention characteristics that influenced the size of the outcomes. Two reviews found that workplace health programmes appeared more effective when the intervention targeted specific health issues such as smoking or obesity, rather than overall lifestyle change (Abraham and Graham-Rowe 2009; Kremers et al. 2010). Workplace health programmes targeting physical activity were more effective when they included walking compared to other forms of physical activity promotion (Abraham and Graham-Rowe 2009). An increased significant effect size was also found for 'multimodal' workplace health programmes that incorporated different combinations of cognitive–behavioural and relaxation components in the workplace (Richardson and Rothstein 2008) and for workplace health programmes that included an educational component (Rongen et al. 2013). Ensuring ease of uptake through the provision of a fitness facility based in the workplace was associated with an increase in effectiveness for some health outcomes (Conn et al. 2009), as was including the participation of employees in the design of workplace health programmes (Conn et al. 2009). Physical activity based workplace health programmes were associated with increased effectiveness when they included a review of goals and graded tasks (e.g. physical tasks that increase in difficulty) as performance improved.

Mixed effects[3] were noted in two reviews investigating the extent to which workplace health programme duration (length) moderated effects. Longer programmes were associated with a non-significant negative effect (Richardson and Rothstein 2008), but a non-significant beneficial effect for workplace health programmes lasting more than 12 weeks was observed by Kremers et al. (2010). However, greater effectiveness was observed in workplace health programmes that ensured weekly contact with programme providers (Rongen et al. 2013).

Characteristics of the intervention implementer impacting on outcomes

One review found that workplace health programmes delivered by employee providers were more effective compared to those delivered by other types of implementers (Conn et al. 2009).

Characteristics of the recipient impacting on outcomes

Three reviews observed differences in outcomes based on the characteristic of recipients. Two reviews (Abraham and Graham-Rowe 2009; Rongen et al. 2013) reported significant reductions in effectiveness of workplace health programmes when delivered to older employees. Mixed effects were observed across different systematic reviews in relation to women (Hutchinson and Wilson 2012: no significant effect; Rongen et al. 2013: significantly decreased effectiveness). One review explored an aspect of employee engagement, finding significantly lower effects when participation rates were high (Rongen et al. 2013). This may be due to the effects of 'forced participation' across the workplace, where there is higher number of participants but many are less motivated to engage in healthy behaviour.

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[3] This means that a factor could have no influence on effectiveness, be associated with increased effectiveness or be associated with decreased effectiveness.

Research Question 1: What is the evidence available from systematic reviews for the effectiveness of workplace health interventions in improving health outcomes?

In general, workplace health interventions appear to produce beneficial effects. A significant detrimental effect was reported in only two reviews. However, the potential for publication bias should be acknowledged.

Determining *how much* impact these interventions have is more challenging. Effect sizes for workplace health interventions examined in this review of reviews lay between 0.05 and 0.3 in the majority of reviews. But judging the value of an intervention involves more than the magnitude of an effect. Effect sizes can appear small where the outcome in question occurs very infrequently. In these cases, small effect sizes are common and can have appreciable public health impacts (Rutledge and Loh 2004). Further, differences between intervention and control groups will vary depending on the control or comparison conditions under study. For example, an intervention will appear more effective where the comparison group receives no health promotion at all as opposed to a control condition of lesser intensity or duration. Finally, in terms of public health interventions, effect sizes of this magnitude could be considered good value, as they are generally relatively inexpensive to provide (National Institute for Health and Care Excellence 2013; Owen et al. 2012).

Research Question 2: Does evidence available from systematic reviews indicate that workplace health interventions improve 'business outcomes' such as productivity, presenteeism/absenteeism and reduced sick time?

In general, reviews showed that workplace health promotion interventions had positive effects on business-related outcomes, although these were not always statistically significant. However, the potential for publication bias influencing these results should be acknowledged.

Of those reviews providing pooled effect sizes in relation to absenteeism, three (Aniol 2001; Parks and Steelman 2008; Rongen et al. 2013) demonstrated statistically significant beneficial effects (SMDs: 0.12, 0.21 and 0.30 respectively). Conn et al. (2009) found a statistically non-significant beneficial effect of workplace health on work attendance: $d = 0.05$ (95% CI: −0.19-0.29). Similarly, Kuoppala et al. (2008) reported a statistically non-significant beneficial effect of workplace health upon sick leave: $RR = 0.79$ (95% CI: 0.59-1.07).

Of two reviews examining the effect of workplace health in terms of reducing self-reported job stress, Conn et al. (2009) demonstrated a statistically significant beneficial effect: $d = 0.53$ (95% CI: −0.15-1.22), as did Montano et al. (2014b): $d = −0.37$ (95% CI: -0.71 to −0.04).

One low-quality review indicated a positive return on investment in terms of absenteeism costs (Baicker et al. 2010), whereas another review of high quality did not (van Dongen et al. 2011).

Research Question 3: What evidence is available from systematic reviews regarding the relationship between evaluated processes of workplace health intervention implementation and health or 'business' outcomes?

After looking at whether workplace health efforts are effective, and the size of that effect, we next consider what it was about those interventions that made them effective. This included the 'processes' of workplace health intervention, including the context and implementation of the interventions. No reviews found examined the relationship between evaluated processes (e.g. fidelity, acceptability) of workplace health intervention implementation and health or business outcomes. Therefore, a gap in the evidence base has been identified, although it is unclear whether this is due to a scarcity of primary research or if there is an accumulation of primary research which has yet to be synthesised. Although not examining the association of process outcomes with effectiveness, a recent systematic review which identified over 50 barriers and facilitators to effective health promotion interventions was located in this review and has been used to inform the framework analysis (Wierenga et al. 2013).

Nine reviews examined other factors influencing effectiveness, including demographic characteristics, but very few examined the same set. Nevertheless, in two reviews significant reductions in the effectiveness of workplace health programmes were reported when delivered to

older employees (Hutchinson and Wilson 2011, Rongen et al. 2013), three reviews found a non-significant effect of intervention duration upon effectiveness (Hutchinson and Wilson 2012; Kremers et al. 2010; Richardson and Rothstein 2008) and three reviews found that workplace health programmes were associated with increased effectiveness when targeted upon a specific health issue such as smoking cessation or weight management (Abraham and Graham-Rowe 2009; Hutchinson and Wilson 2012; Kremers et al. 2010).

Table 3.4: Factors related to effectiveness

Factor	Wierenga et al. (2013) dimension	Abraham and Graham-Rowe (2009)	Conn et al. (2009)	Dishman et al. (1998)	Hutchinson and Wilson (2012)	Kremers et al. (2010)	Montano et al. (2014a,b)	Parks and Steelman (2008)	Richardson and Rothstein (2008)	Rongen et al. (2013)
Age (older)	Acceptability				NS	--				--
Counselling component										-
Education component	Intervention content									++
Employee interventionist	Deliverer (job position)		++							
Exercise component										+
Female gender	Acceptability				NS					-
Fitness facility on-site	Accessibility		++							
Fitness only versus comprehensive programme								NS		
Formative evaluation	Policy of continuous improvement					++				
Graded tasks	Intervention content	++								
Group intervention										+
Individually tailored		+								
Intervention frequency	Intervention (duration or dose)									++
Intervention duration	Intervention (duration or dose)				NS	+			-	
Large company			NS							

Factor	Wierenga et al. (2013) dimension	Abraham and Graham-Rowe (2009)	Conn et al. (2009)	Dishman et al. (1998)	Hutchinson and Wilson (2012)	Kremers et al. (2010)	Montano et al. (2014a,b)	Parks and Steelman (2008)	Richardson and Rothstein (2008)	Rongen et al. (2013)
Maintenance period					NS					
Multimodal intervention	Intervention content								++	
Multiple companies			NS							
Multiple organisational modifications							+			
Organisational policy change	Policy integration		++							
Participation (high)	Employee engagement									--
Paid during intervention	Financial commitment		++							
Profit status			NS							
Review of goals	Intervention content	++								
Study design (RCT)				--	++					++
Study quality							-	NS		
Targeted on condition	Intervention content	++			+	++				
Walking vs other PA	Intervention content	++								
White collar employees										+
WP-designed intervention	Tailored intervention		++							

AMSTAR ratings: Abraham and Graham-Rowe 2009, 4; Conn et al. 2009, 7; Dishman et al. 1998, 5; Hutchinson and Wilson 2012, 4; Kremers et al. 2010, 7; Montano et al. 2014a,b, 10; Parks and Steelman 2008, 10; Richardson and Rothstein 2008, 6; Rongen et al. 2013, 10.

++ statistically significant beneficial effect; + non-significant beneficial effect; 0 no difference between control and intervention; - non-significant detrimental effect; -- Statistically significant detrimental effect; NS effect not stated.

4 Synthesis of people's views on workplace health

Quality appraisal of views studies

Ten studies contained people's 'views' of their experience of workplace health promotion. Nine of these were obtained through qualitative data collection and analysis methods (Bardus et al. 2014; Dolan et al. 2005; Edmunds et al. 2013; Gibson 2014; Lomas and McCluskey 2005; Mellor and Webster 2013; Procter et al. 2014; Robinson et al. 2014; White et al. 2008). One study was a quantitative survey of people's reasons for not exercising and was rated using quantitative quality assessment tools (Blake et al. 2013).

Judgements about study quality were based on the reliability, relevance and usefulness of the findings contained in each study. Reviewers judged the reliability of individual studies by considering the extent to which they had reduced systematic bias in their methods of sampling, data collection and data analysis, and the extent to which the findings of the study were grounded in and supported by the data. When judging the usefulness of the study findings, reviewers examined the extent to which the study had privileged the perspectives and experiences of people and the richness and complexity of descriptions and analyses. The overall relevance of the study findings was considered in relation to answering the review question, not the aims and objectives of each individual study.

Overall, study quality varied across all three dimensions (see Table 4.1). Of the three studies judged to be of high reliability, two were also judged to be of high relevance and usefulness (Bardus et al. 2014; Procter et al. 2014) and one was judged to be of medium relevance and high usefulness (Edmunds et al. 2013). Six studies were judged to have medium reliability; two of these provided highly relevant and useful findings (Lomas and McCluskey 2005; White et al. 2008), three medium relevant and useful findings (Blake 2013; Mellor and Webster 2013; Robinson et al. 2014) and one study was judged as highly relevant with medium useful findings (Dolan et al. 2005). Only one study was judged to be of low reliability but contributed findings judged to be of medium relevance and usefulness (Gibson 2014).

Reliability of qualitative studies

Sampling

Eight of the ten studies were judged to have taken several steps (Dolan et al. 2005; Edmunds et al. 2013; Lomas and McCluskey 2005; Mellor and Webster 2013; Procter et al. 2014; White et al. 2008) or made a thorough attempt (Bardus et al. 2014, Robinson et al. 2014) to increase rigour in their sampling. Studies attempted to represent a diverse sample of people (or their target group, e.g. men) within one or across more than workplace health promotion site. Only one study, of low reliability, was judged as making 'few steps', providing a lack of detail in how they recruited a smaller sample from a larger pool of volunteers (Gibson 2014). The survey by Blake et al. (2013) was judged as using appropriate methods of probability sampling, by inviting all employees to complete a questionnaire before and five years after participating in a workplace health intervention.

Data collection

All studies provided examples of rigour in their methods of data collection. Four studies were judged to have made a thorough attempt (Bardus et al. 2014; Edmunds et al. 2013; Lomas and McCluskey 2005; Procter et al. 2014) and five to have taken several steps (Dolan et al. 2005, Gibson, 2014, Mellor and Webster 2013, Robinson et al. 2014, White et al. 2008). Studies judged as thorough provided additional descriptions of their interview processes, particularly ethical procedures around facilitating consent, ensuring that participants felt comfortable and attempting to ensure confidentiality and anonymity. Some studies broadened the range of data they collected by using more than one method, such as conducting both in-depth interviews and focus groups (Bardus et al. 2014; Dolan et al. 2005; Mellor and Webster 2013) or by taking field notes (White et

al. 2008). Blake et al. (2013) ensured rigour in their use of survey methodology by ensuring that it reached a response rate of greater than 60%.

Data analysis

The majority of studies took steps to increase analytical rigour (N=7). The four studies judged to have made a thorough attempt (Bardus et al. 2014; Dolan et al. 2005; Edmunds et al. 2013; Procter et al. 2014) and the two studies judged as taking several steps (Mellor and Webster 2013; Robinson et al. 2014) described how they conducted a thematic, grounded theory or framework analysis. They provided a detailed description of their methods and how this supported the generation of themes presented in the findings. Studies judged to have made a thorough attempt also described how they increased validity and reliability in the analysis, such as comparing separate data sources, or resolving differences in their analysis through discussion with members of the research team. There were no concerns about the statistical analysis of the survey data undertaken by Blake et al. (2014). Methods of analysis were minimally reported in two studies (Lomas and McCluskey 2005, White et al. 2008) and not at all in one study (Gibson 2014).

Supported/grounded in the data

Studies clearly reported participants' views, in the form of quotes, separately from the authors' narrative descriptions of data to show how they arrived at their findings. Nine of ten studies were judged to have been at least fairly well grounded (Bardus et al. 2014; Edmunds et al. 2013; Procter et al. 2014; White et al. 2008) if not well grounded (Dolan et al. 2005; Gibson 2014; Lomas and McCluskey 2005; Mellor and Webster 2013; Robinson et al. 2014) in the data.

Usefulness of qualitative studies

Breadth and depth

Only two studies provided both breadth and depth in their findings (Bardus et al. 2014, Edmunds et al. 2013). The remaining six studies presented findings on a range of barriers and facilitators relevant to engaging in workplace health promotion programmes but did not report them in depth (Dolan et al. 2005; Gibson 2014; Lomas and McCluskey 2005; Mellor and Webster 2013; Procter et al. 2014; White et al. 2008). One study was judged as limited in both breadth and depth (Robinson et al. 2014); and Blake et al. (2013), as a quantitative survey, was not assessed on this criterion.

Perspectives

The final quality criteria assessed the extent to which the study privileged the perspectives and experiences of people participating in workplace health programmes. Studies were judged to be of high quality, with people's perspectives considered as being privileged either 'a lot' (Bardus et al. 2014; Edmunds et al. 2013; Gibson 2014; Lomas and McCluskey 2005; Procter et al. 2014; White et al. 2008) or at least 'somewhat' (Dolan et al. 2005; Mellor and Webster 2013; Robinson et al. 2014). No studies were judged as giving little or no weight to people's perspectives; and the study by Blake et al. (2013) was not assessed according to this criteria.

Table 4.1: Reliability, relevance and usefulness of findings

Author	Reliability of findings			Relevance of findings			Usefulness of findings		
	High	Medium	Low	High	Medium	Low	High	Medium	Low
Bardus et al. (2014)	✓			✓					✓
Blake et al. (2013)		✓			✓			✓	
Dolan et al. (2005)		✓		✓				✓	
Edmunds et al. (2013)	✓				✓		✓		

Author	Reliability of findings			Relevance of findings			Usefulness of findings		
	High	Medium	Low	High	Medium	Low	High	Medium	Low
Gibson (2014)			✓	✓				✓	
Lomas and McCluskey (2005)		✓		✓			✓		
Mellor and Webster (2013)		✓		✓				✓	
Procter et al. (2014)	✓			✓					✓
Robinson et al. (2014)		✓		✓				✓	
White et al. (2008)		✓		✓			✓		

Characteristics of included studies

In total, ten UK-based studies accessed people's views about workplace health promotion programmes (Bardus et al. 2014; Blake et al. 2013; Dolan et al. 2005; Edmunds et al. 2013; Gibson et al. 2014; Lomas and McCluskey 2005; Mellor and Webster 2013; Procter et al. 2014; Robinson et al. 2014; White et al. 2008).

Bardus et al. (2014) aimed to investigate reasons for participating (or not) in an e-health workplace physical activity intervention offered across 17 UK worksites of small, medium and large size, focused on academia, government services, insurance and petrochemicals. Participants were purposively sampled to gain views from both men and women, and those of different ages and perspectives from different types of businesses. Semi-structured interviews and focus groups were conducted with workers and thematic synthesis undertaken to understand the reasons for participation and non-participation. The overall usefulness rating for this study was high. This research captured views from a broad range of businesses and employees, who would or would not participate in a health workplace intervention. The data were organised into three topical areas: internal reasons (non-participation, such as busy lives, loss of interest), external reasons (participation, such as being encourage by supervisor) and programme-related reasons (participation, such as receiving constant reminders). The data collected from the interviews and focus groups resulted in interesting and enlightening views from the employees.

Blake et al. (2013) undertook a five-year health and wellbeing improvement programme in a large UK National Health Service (NHS) organisation, which included exercise sessions, facilities, campaigns to promote healthy eating, community interventions and complementary therapies. As part of a pre- and post-test survey questionnaire measuring changes in health behaviours, employee and management participants across a wide range of professional groups were asked to indicate reasons for not being physically active. Differences in the ratings of these barriers were assessed but not further analysed. The overall usefulness rating for this study was medium because the data collected were from a survey with no in-depth exploration of views expressed by the participants. The limitations addressed in the study were the 'lack of analysis of individual-level changes in health behaviours' and respondents being self-selecting (p.270).

Dolan et al. (2005) conducted a qualitative study across three UK Royal Mail Group worksites. They aimed to explore men's perceptions and experiences of three different workplace-based health promotion interventions to improve prostate health awareness and their attitudes towards the workplace as an appropriate setting for promoting men's health. In-depth semi-structured interviews and focus groups were conducted with workers, the occupational health nurse providing the intervention, and participants who trained as peer educators. Data were analysed using

grounded theory. The overall usefulness rating for this study was medium. This research specifically targeted men about a very sensitive health topic. The views of the participants focused on preconceived cultural norms that surround men and discussions around health. Although the intervention was a success, there were limitations, which included time constraints, lack of resources (training was limited to a one-off session in one intervention site), and external funding which did not allow for a follow-up visit to see if any impact had been made.

Edmunds et al. (2013) conducted a study that explored factors contributing to non-participation in a workplace physical activity intervention provided to a large UK call centre. Men and women not participating in the intervention were interviewed to explore their perceptions of physical activity, the intervention and the factors which contributed to their non-participation; the data were thematically analysed. The overall usefulness rating for this study was high because it is equally important to explore why people don't participate in health interventions. The barriers that the employees raised, such as shift patterns at work or lack of confidence in using gym equipment, offer employers knowledge of how to improve and promote better health incentives.

Gibson (2014) studied views of workforce participation in an online health management tool designed to promote healthy ageing. This intervention was offered to the Suffolk County Council workforce as part of a pan-EU project. The tool was also designed to support managers in managing sickness absence and improving working conditions. Exploratory focus groups were held with male and female volunteer workers aged between 45 and 68 years, with themes derived from findings. The overall usefulness rating for this study was medium. Here the specific target group was the older volunteer workforce. The topic examined was wellbeing and a small sample of 10 people was recruited. It was unclear whose opinions were used (employees or volunteers) and only one session took place. Fairly interested points were made by the focus group, but the study was limited by a lack of in-depth analysis, small cohorts and a time-restricted programme.

Lomas and McCluskey (2005) examined the perceptions of male NHS workers across a range of worksites who took part in a blood pressure screening intervention. The authors were interested in men's perceptions of the experience and the impact of screening on men's health decision-making processes, and they aimed to identify ways to improve the intervention. Semi-structured interviews were conducted with workers and managers, and thematic analysis undertaken. The overall usefulness rating for this study was high. The sample covered a broad range of work roles in the NHS, and the intervention, which was specifically targeted towards men, resulted in a successful outcome. By offering blood pressure screening on site, the male participants were more likely to take an interest in their own health. Other factors which encouraged participation were the professionalism of the deliverer, the effort made with regard to the welfare of the recruits, and external and internal support.

Mellor and Webster (2013) aimed to identify barriers and facilitators to the implementation of an employee wellbeing strategy in a large UK public sector organisation. Using a case study approach, extensive company policy documents were analysed and semi-structured interviews were undertaken with intervention providers, union representatives and line managers to understand the implementation. Data were synthesised using framework analysis. The overall usefulness rating for this study was medium. The qualitative element of this study only explored managers' and implementers' roles in the programme. There was limited information about the sample and the views shared mainly dealt with lack of involvement from management and what didn't work. The programme was only an introduction to the views of the implementers, and was this considered a limitation; thus future research should take in consideration the views and experiences of the programme users.

Procter et al. (2014) explored employee and intervention provider experiences of a physical activity intervention that promoted walking to work. Offered to a wide range of small, medium and large businesses in southwest England, workforce participants (including peer promoters) who worked in sedentary occupations took part in semi-structured interviews. Data were analysed using framework analysis methods. The overall usefulness rating for this study was high. In total, 22 in-depth interviews were conducted on behaviour change techniques. This was an employer-led intervention and the findings were taken from a number of different worksites. The findings from the data illustrated many barriers and facilitators. The health promotion success was perceived to come from the attention to detail, such as equipping the participants with booklets, planned walking routes, support and advice. This experience for participants on the whole was successful,

with a few suggestions from them, such as installing showers. A limitation flagged up in the quality appraisal was that this was a feasibility study.

Robinson et al. (2014) aimed to evaluate participatory approaches used within interventions to promote mental wellbeing in a range of small, medium and large workplaces situated in neighbourhoods with a high risk of poor health throughout the region of Yorkshire and the Humber. Semi-structured interviews were undertaken with employees, managers, union representatives and intervention providers, with the authors conducting thematic synthesis. The overall usefulness rating for this study was medium. The research was conducted at multiple worksites, with businesses of different sizes. In total, 21 participants were interviewed, and the sample covered a wide range of job roles. The data collected from the interviews were limited, drawing mainly on perspectives of the 'implementers embedding the practice' rather than the delivery.

White et al. (2008) aimed to understand men's experiences of a community-services based workplace weight loss intervention offered in the Bradford and Airedale area. Male workers and intervention providers took part in semi-structured interviews, and field notes were taken. The overall usefulness rating for this study was high. The success of this male-focused intervention was related to access to the on-site weight loss programme. Although the interviews were only 10-15 minutes long, the participants' feedback, coupled with field observations, provided findings that were positive with regard to engagement with the programme. Many themes emerged during data analysis, such as 'fear and embarrassment', 'momentum and motivation' and 'having sessions in the workplace'. These themes played a crucial part in addressing the needs and concerns that the participants expressed when talking about health issues. The workplace can be an arena conducive to implementing an effective weight loss programme.

Descriptive overview of the studies

The studies were undertaken in a variety of businesses, shown in Figure 4.1 below.

Figure 4.1: Type of businesses
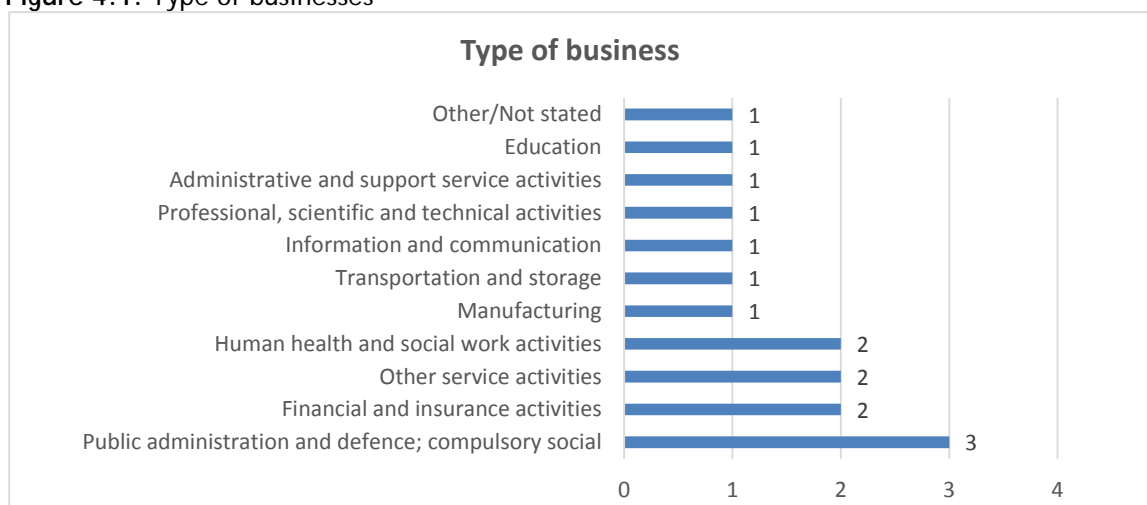
The majority of which were large in size. Four studies did not describe clearly the size of their sampled businesses (Blake et al. 2013; Gibson et al. 2014; Lomas and McCluskey 2005; White et al. 2008). Of the remaining six studies, three sampled from a range of small, medium and large businesses (Bardus et al. 2014; Procter et al. 2014; Robinson et al. 2014), two described sampling from large sized businesses (Edmunds et al. 2013; Mellor and Webster 2013); and one sampled from enterprise-sized business (Dolan et al. 2005).

In general, a wide variety of settings within and across workplaces were demonstrated. The majority of studies (n=7) gained stakeholder views from single workplaces (Blake et al. 2013; Dolan et al. 2005; Edmunds et al. 2013; Gibson et al. 2014; Lomas and McCluskey 2005; Mellor and Webster 2013; White et al. 2008). However, these did sample widely within the organisations: four

of these also sought views from more than one worksite (e.g. department) within each workplace (Blake et al. 2013; Dolan et al. 2005; Gibson et al. 2014; Lomas and McCluskey 2005).

The exact location of the businesses under study was not always apparent, e.g. whether workplaces were in urban or rural settings. Three studies took place in the UK cities of London, Buxton and Bradford and Airedale area (Edmunds et al. 2013; Mellor and Webster 2013; White et al. 2008). Two further studies accessed participants in workplaces from Suffolk and the region of Yorkshire and the Humber (Gibson et al. 2014; Robinson et al. 2014). However, half of the studies did not clearly describe where in the UK they were conducted (Bardus et al. 2014; Blake et al. 2013; Dolan et al. 2005; Lomas and McCluskey 2005; Procter et al. 2014).

The purposes of these research studies varied subtly. Four studies sought the participants' experiences of the intervention (Dolan et al. 2005; Gibson et al. 2014; Lomas and McCluskey 2005; Procter et al. 2014). Another four studies aimed to understand why people took part in an intervention (or not) (Bardus et al. 2014; Blake et al. 2013; Edmunds et al. 2013; White et al. 2008). Two studies aimed to identify barriers to and/or facilitators of the intervention under study (Mellor and Webster 2013; Robinson et al. 2014).

Most studies (n=6) relied on a single type of data collection to access stakeholders' views. One-to-one interviews were used in four of the studies (Edmunds et al. 2013; Lomas and McCluskey 2005; Procter et al. 2014; Robinson et al. 2014), with one study utilising focus groups (Gibson et al. 2014), and one using surveys (Blake et al. 2013). However, four studies did use a combination of methods: Bardus et al. (2014) and Mellor and Webster (2013) used both interviews and focus groups, while White et al. (2008) undertook participant interviews plus observation. Dolan et al. (2005) conducted interviews, focus groups and surveys.

The included studies focused on a range of health topics, as shown in Figure 4.3.

Figure 4.3: Health issues which interventions aimed to address
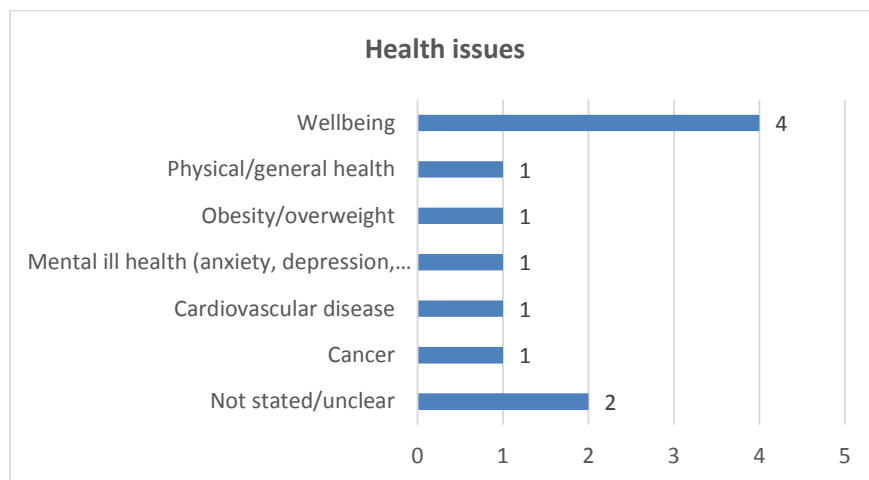
Wellbeing was studied in four studies, with the remainder focused on a variety of health conditions. These health issues were addressed through physical activity interventions (Bardus et al. 2014; Blake et al. 2013; Edmunds et al. 2013; Procter et al. 2014), a combination of healthy eating and physical activity (White et al. 2008); or interventions to improve blood pressure screening uptake (Lomas and McCluskey 2005). Authors in two studies did not describe the type of health behaviour they aimed to change (Dolan et al. 2005; Gibson et al. 2014; Mellor and Webster 2013; Robinson et al. 2014).

In general, the studies were relatively small in size, befitting the qualitative nature of the analysis. The number of participants in the included studies ranged from 10 to 1,134. One study utilised a much larger sample which surveyed employees across a range of workplaces: in this, the survey contained one question about barriers to participation (Blake et al. 2013). The distribution of studies according to sample size is illustrated in Figure 4.4.

Figure 4.4: Sample size categories
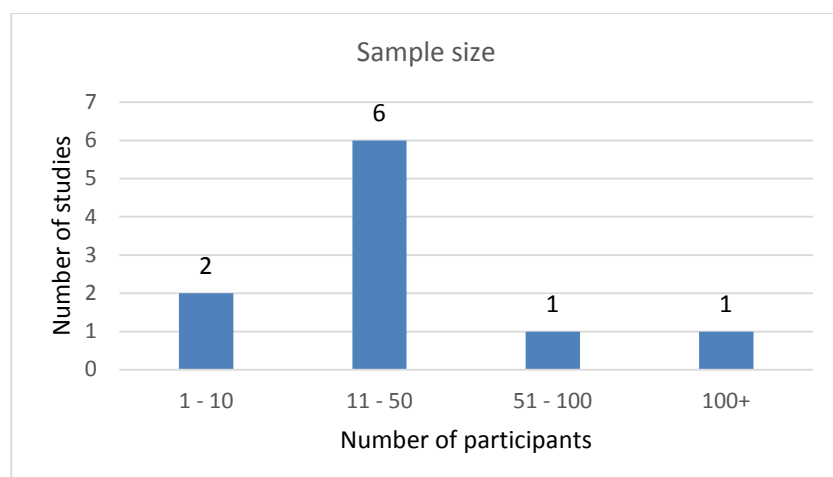
More than half (n=6) of the included studies accessed the views of particular groups. Three studies examined males only, in relation to prostate cancer screening (Dolan et al. 2005), blood pressure screening (Lomas and McCluskey 2005) and weight management (White et al. 2008). One study each focused on: older participants (Gibson et al. 2014); workers in businesses situated in poor neighbourhoods (Robinson et al. 2014); and employees who did not participate in a workplace physical activity intervention (Edmunds et al. 2013). The remaining four studies did not describe targeting a population with a specific characteristic of interest but appeared to sample from across the workforce.

All of the included studies reported on the views of employees/workers. Seven also sought the views of other stakeholders, including: immediate managers/supervisors (n=4; Dolan et al. 2005; Lomas and McCluskey 2005; Mellor and Webster 2013; Robinson et al. 2014); intervention providers (n=4; Dolan et al. 2005; Procter et al. 2014; Robinson et al. 2014; White et al. 2008); union representatives (n=3; Dolan et al. 2005; Mellor and Webster 2013; Robinson et al. 2014); unpaid staff/volunteers (Gibson et al. 2014); and other organisational stakeholders in a commissioning primary care trust (Robinson et al. 2014). No studies reported accessing the views of senior managers, owners, or board directors.

Main factors influencing the success of employer-led workplace health

Across the 10 included studies, a total of 36 barriers to and facilitators of workplace health interventions were identified. These are shown in Figure 4.5.

Figure 4.5: Identified factors
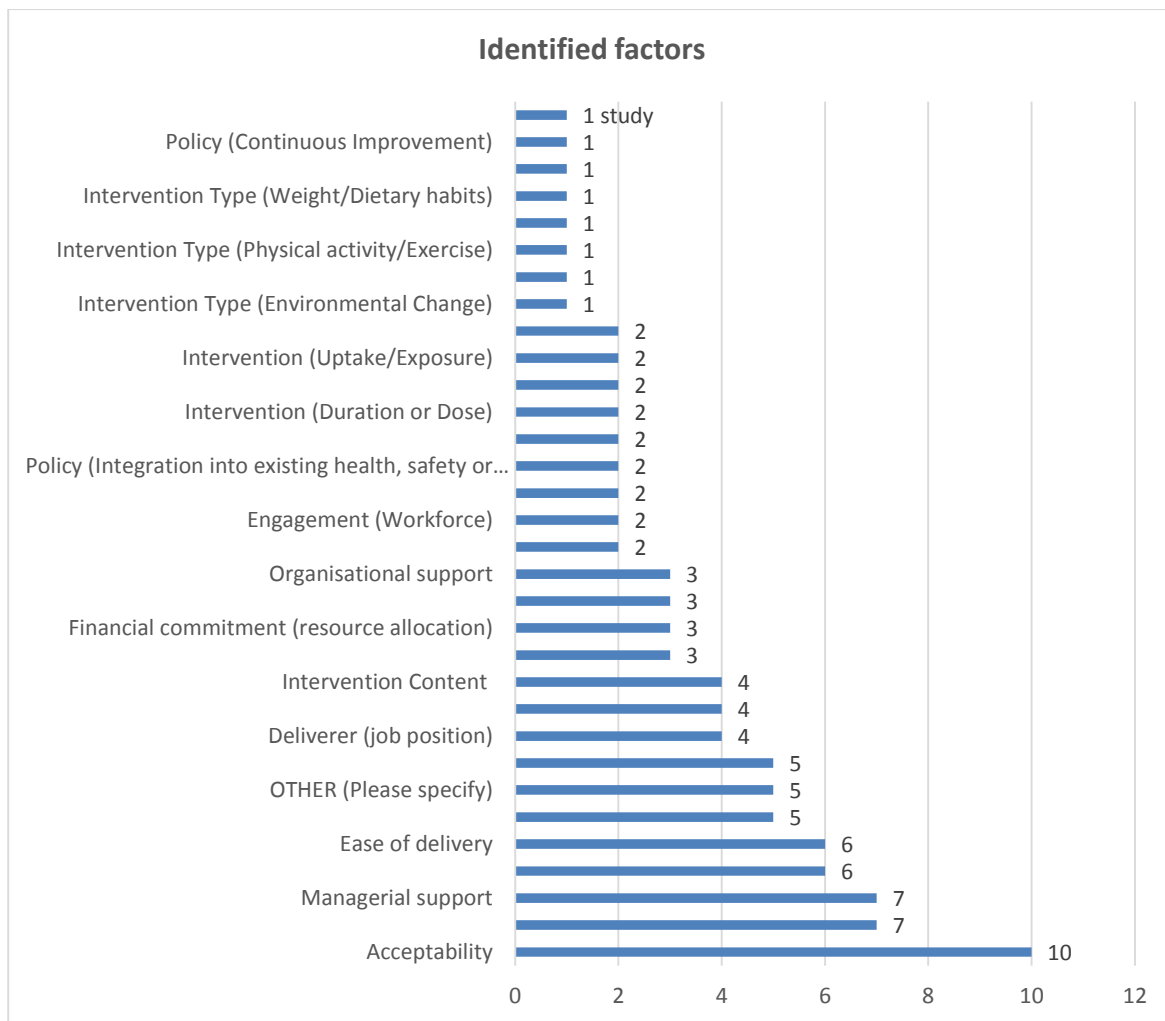
In the majority of studies, participants described how they were influenced to participate, and a variety of factors contributed to this. These included the acceptability of the intervention, its accessibility, managerial support for the intervention, ease of delivery, a tailored or individualised approach to intervention delivery, the approach of the person delivering the intervention, and the importance of structures within the workplace to promote social support. These factors are presented in further detail below within the theoretical framework proposed by Wierenga et al. (2013).

Characteristics of the socio-political context

Participants did not describe being influenced by any socio-political factors, such as the compatibility of the programme with societal developments or a competitive business environment.

Characteristics of the organisation

Several organisational characteristics were identified, which focused around management support for the intervention.

Managerial support was identified as a characteristic where participants expressed the view that the support (or lack of support) of on-site, local or middle managers (as opposed to executive or directorial staff) influenced them in some way. In total, seven studies discussed managerial support as both a barrier to and a facilitator of programme success (Bardus et al. 2014; Edmunds et al.

2013; Lomas and McCluskey 2005; Mellor and Webster 2013; Procter et al. 2014; Robinson et al. 2014; White et al. 2008).

The idea of 'support' ranged from employees' perceptions of their managers' support, to managers describing what skills they needed to be supportive or to provide an intervention. All participants identified provider and organisational supports that could facilitate health behaviour changes. Participants across a majority of these studies identified the importance of managers providing support to employees in order to encourage enrolment (Bardus et al. 2014; Edmunds et al. 2013; Lomas and McCluskey 2005; Procter et al. 2014; White et al. 2008) and in being flexible so that participants could establish a new routine (Procter et al. 2014).

However, managers in the Mellor and Webster study (2013) noted that they themselves needed support in order to support in turn employees in health promotion activities, for example, by having clear procedures to support mental health initiatives and receiving appropriate training around what constitutes stress and how to communicate sensitively with employees. Managerial participants in this study also identified that they needed skills to manage personal issues, and address confidentiality and communications with the team.

Intervention providers, managers and workers in the Robinson et al. (2014) study noted that a dedicated role of 'business champion' who led planning and implementation with managers and senior directors helped to facilitate a successful intervention. Senior management or director support at the planning stage was also identified as helpful (Mellor and Webster 2013; Robinson et al. 2014). Across the entire organisation, managers in one study noted that an intervention appeared less successful where there was a mismatch between management's business priorities and fostering a wellbeing culture (Mellor and Webster 2013).

Several other characteristics of the organisation were identified as influencing intervention success but were not further synthesised due to the low number of studies citing them. They are listed here:

- using existing channels of communication (n=3 studies)
- organisational support (3)
- financial commitment (3)
- workplace culture (3)
- engagement of managers/directors (2)
- engagement of workforce (2)
- scheduling workplace health activities (2)
- policy integration of workplace health (2)
- policy of continuous improvement (1)
- champions need status within workplace to influence (1)
- supporting sustainability (1).

Characteristics of the implementer

The approach of the person providing the intervention was deemed an important factor influencing participants' engagement in or perceptions of workplace health promotion initiatives.

Five studies identified that the approach used by the intervention provider had an influence on their participation (Dolan et al. 2005; Mellor and Webster 2013; Procter et al. 2014; Robinson et al. 2014; White et al. 2008). Some participants in the study by Procter et al. (2014) reported that they valued the encouragement received from the health promoters and thought that it was especially valid if the promoter had 'themselves changed their own health behaviours, had local knowledge, and were able to discuss barriers and support participants' (p.9). Worker participants in Procter et al. (2014) and intervention providers in White et al. (2008) noted that deliverers had to strike a balance between listening, being responsive to participants' needs and encouraging them to set goals and 'take ownership' of their health behaviour change. Promoters in Procter et al. (2014) also

noted that it could be difficult where there were work pressures or they were of a junior grade and supporting a more senior manager.

Intervention providers, managers and workers in the study by Robinson et al. (2014) described a list of qualities highlighted in discussions with business champions. These included: enthusiasm, commitment, responsiveness, approachability, good communication skills, flexibility, trustworthiness, and open-mindedness. Participants in this study also highlighted the need for good communication skills and the ability to relinquish their role to others so that those people could 'own' the intervention. Managers reported in another study that they needed particular skills in managing personal staff information and confidentiality in team communications (Mellor and Webster 2013).

Other characteristics of the implementer thought to influence an intervention's success were identified but due to the low number of studies (shown in brackets below), were not further synthesised. They include:

- Implementer's job position (4)
- Implementer's job qualifications (2)
- Aspects of implementer's role (2).

Characteristics of the intervention programme

Across the set of included studies, the ease of delivery and individualised/tailored approach were the characteristics of the intervention programme most often mentioned.

Ease of uptake

The ease of integration of the intervention into working life made a difference or influenced participants in some way. Six studies discussed aspects of the ease of delivery and how it impacted on the success of interventions (Bardus et al. 2014; Edmunds et al. 2013; Gibson 2014; Lomas and McCluskey 2005; Mellor and Webster 2013; Procter et al. 2014). Having enough time to engage in healthy behaviours, both within work and within the context of employees' external lives was identified by participants in three studies (Bardus et al. 2014; Edmunds et al. 2013; Procter et al. 2014). These included issues such as having no time within work to undertake physical activity (Edmunds et al. 2013) and caregiving responsibilities after work (Procter et al. 2014). Edmunds et al. (2013) also noted that some participants felt that the job strain they experienced made them seek out quiet time after work, rather than exercising, and that having no flexibility over job shift patterns limited participants' ability to develop an exercise routine.

Having on-site facilities (e.g. a gym) or an easily accessible intervention provider (e.g. occupational health nurse) was noted as a factor influencing engagement in programmes for participants across three studies (Edmunds et al. 2013; Lomas and McCluskey 2005; Procter et al. 2014). Edmunds et al. (2013) noted that participants appreciated that facilities were free to use; however the competitive atmosphere, poor quality of the equipment and décor of the gym put some people off using it. This was echoed by participants in the study by Procter et al. (2014), who noted that a lack of facilities, such as showers, changing rooms and lockers, put people off walking to work.

Two studies noted the benefits of workplace-wide advertising in making information easy to access. Gibson (2014) noted that a checklist of goals and health information were easy to use. Mellor and Webster (2013) described an increase in the number of participants accessing intervention information when articles, headline news or case studies were placed on the workplace intranet.

Tailored/individualised intervention

Six studies noted the benefits of a tailored or individualised intervention. In three, participants identified that detailed or individualised health information was more motivating (Edmunds et al. 2013; Gibson 2014; Procter et al. 2014). Related to this, White et al. (2008) suggested that interventions would have become tailored to individual participants as they built up a relationship with the intervention provider.

In another study, specific information was gathered from participants in order to customize a mental health promotion intervention appropriately. Managers did not have enough information on

workplace stress from the workplace annual survey and decided to undertake a more detailed needs assessment tailored to their own teams (Mellor and Webster 2013).

Robinson et al. (2014) noted that the timing was important in combination with individualised information: 'well-timed interventions dovetail with concerns and "trigger" situations, so the activator needed to listen to the concerns, identify the triggers and tailor the interventions' (p.591).

The studies identified several other characteristics of the intervention that might influence its success:

- Intervention type: Internet/Web/PC/text (4)

- Intervention content (4)

- Intervention type: Advice (3)

- Intervention type: Duration or dose (2)

- Intervention type: Targeted to a specific group (2)

- Intervention type: Uptake/exposure (2)

- Intervention type: Incentives (2)

- Intervention type: Service provision (1)

- Intervention type: Multicomponent (combination of training, support tools and events) (1)

- Intervention type: Environmental change (1)

- Intervention type: Physical activity (1)

- Intervention type: Wellbeing/mood states (1)

- Intervention type: Weight/diet (1)

- Use of peer educators (1).

Characteristics of the recipient

Study participants identified acceptability, accessibility and structures that promoted social support as recipient-specific characteristics that influenced their engagement with workplace interventions.

Acceptability

All ten studies provided information on the participants' perspective about the acceptability of the intervention. Interventions were described as acceptable for a variety of reasons, for example, because participants thought the workplace was the appropriate place for such an intervention, especially when offered in work time (White et al. 2008). Others suggested that where a positive workplace environment was already in place, or where senior management integrated the intervention into their own agenda and encouraged other stakeholders to take part, the intervention was more likely to succeed (Robinson et al. 2014; White et al. 2008). It was also suggested that interventions were acceptable because a positive environment was created as a result of the intervention, created by people taking part together and supporting one another (Lomas and McCluskey 2005).

The nature of the information provided contributed to its acceptability. For example, the timing of communication (e.g. reminders at specific times of day), providing information about local exercise facilities and the health benefits of physical activity, and detailed and targeted information would be more motivating than general health messages (Edmunds et al. 2013). Others noted that the intervention was acceptable because of the use of tools to keep track of positive behaviours (Gibson et al. 2014). Participants also felt that the intervention was more acceptable where: the intervention was targeted to men specifically; the participants felt that the company was taking an interest in their health in a specific area (cancer prevention); and the approach taken by the intervention provider was considered appropriate (Dolan et al. 2005).

However, several reports identified factors that made the intervention less acceptable to study participants. These identified similar themes, including: a busy life, lack of time (Bardus et al. 2014; Blake et al. 2013; Edmunds et al. 2013); a lack of motivation or a loss of interest (Bardus et al. 2014; Blake et al. 2013; Edmunds et al. 2013); not prioritising exercise (Edmunds et al. 2013); prioritising rest and relaxation in their spare time (Blake et al. 2013; Edmunds et al. 2013); or not seeing the workplace as the appropriate location for health promotion (Mellor and Webster 2013). Edmunds et al. (2013) indicated that a lack of confidence in using gym equipment limited the intervention's acceptability. Procter et al. (2014) suggested that a lack of facilities such as showers, lockers and so on was a barrier. Related to this, Lomas and McCluskey (2005) suggested that the location of blood pressure testing within the workplace was too public.

Accessibility

Participants also provided perspectives about their access to the intervention. A total of seven studies discussed issues of accessibility and their influence on participation. Four studies described the benefit of the intervention taking place within the worksite itself (Bardus et al. 2014; Edmunds et al. 2013; Lomas and McCluskey 2005; White et al. 2008), although the poor quality of the available exercise equipment and lack of confidence in using, and appearing to use, the equipment was noted as a barrier in one study (Edmunds et al. 2013), and participants in another study raised questions about the size of a large room and inadequate partitions as a barrier (Lomas and McCluskey 2005). One study expressed a need for the provider to be available for longer periods 'to allow more men to see her' (Dolan et al. 2005). In some studies, issues of the process were barriers to accessibility. For example, one study described the intervention enrolment process as being too burdensome with no follow-up, making access difficult (Bardus et al. 2014).

Participants also described that the hours in which the intervention was available impacted on their ability to access. For example, a lack of control over time within work, and changing shift patterns, were identified as barriers to regularly accessing workplace health promotion interventions (Edmunds et al. 2013); and another study noted participants valued the intervention being available within working hours (White et al. 2008). Participants in one study were assessed for their perception of a lack of time to participate (Blake et al. 2013).

Factors external to the workplace itself and to the context of people's working lives also influenced on accessibility. For example, Edmunds et al. (2013) described the time and energy spent commuting as a barrier to a physical activity intervention. Two studies also identified that the physical environment (e.g. neighbourhoods, busy roads) surrounding the workplace was not conducive to walking to and from work, a main part of the intervention provided in those locations (Edmunds et al. 2013; Procter et al. 2014).

Structures to promote social support

Finally, five studies highlighted the importance of structures to promote social support to intervention success (Bardus et al. 2014; Edmunds et al. 2013; Gibson 2014; Procter et al. 2014; White et al. 2008). In these studies, participants expressed the view that efforts made with the workforce to promote worksite-wide social norms and social support, or existing social supports, influenced them in some way. Four of these described support as collegial, i.e. supporting each other and/or creating an atmosphere in which work colleagues could discuss progress and encourage each other (Bardus et al. 2014; Edmunds et al. 2013; Procter et al. 2014; White et al. 2008). But two studies also described support as competitive:

> they had a greater motivation toward activities that were social and competitive … committing to be part of a team or group would strengthen their motivation to attend exercise sessions because others would have an expectation that they would be there (Edmunds et al. 2013: p.231)

> participants thought using it [the intervention] in the workplace would be useful as it would 'play on the competitive element of the scores (Gibson 2014: p.51)

Edmunds et al. (2013) also noted that a lack of social support could hinder participation: where colleagues had little or no interest in the programme, participants reported being inhibited in taking part, and some participants were reluctant to attend a gym where they felt they would not be included as they perceived it to be populated by 'exercise freaks'.

Finally, one additional study also identified a view from participants that men don't talk about health problems at work (Lomas and McCluskey 2005).

5 Policy documents synthesis

Results

We included 17 policy documents in this synthesis category, of which 10 were written for the UK policy context; four were from Australia and three from North America. The majority of the documents were written by health organisations (n=6) and statutory bodies (n=11). They were published between 2007 and 2014 (see Appendix 10 for full details). Most of the documents covered recommendations to organisations which were planning to develop a work promotion strategy. Some took the form of checklists for accreditation purposes (e.g. The Workplace Wellbeing Charter), others contained advice about specific types of wellbeing strategies (e.g. the NICE guidance on mental and physical wellbeing policies), and others promoted wellbeing at work more generally (e.g. the Vitality Institute's *Investing in Prevention: A National Imperative*). The basis for the recommendations was not stated in many of the documents (n=8). The majority (n=9) were built on evidence from reviews or from published statistics on disease prevalence. The rest (n=8) had a component of primary research, usually consultations with stakeholders on the guidance (e.g. the NICE reviews), or interviews with business leaders and employees about the salient issues that should be addressed (e.g. PriceWaterhouseCoopers' *Workplace Wellness in Australia*). Some of these were based on the direct experience of setting up workplace programmes.

Policy document recommendations

The majority of the documents made recommendations to organisations about their wellbeing strategies, and we present these findings first (Table 5.1). Most of the documents gave general advice about setting up projects, with almost all identifying the involvement and endorsement of senior management as important. Employee engagement in the development of the project was also recognised at a key element for success.

Table 5.1: Recommendations to organisations: general advice about project management (top 5)

Item	Number
Engage senior management	14
Encourage employee involvement in wellbeing strategy development	10
Develop action plan/ check list	9
Embed programmes in organisational strategies	7
Publicise programme	7

Table 5.2 describes the main recommendations relating to health activities. An acknowledgement that these were health programmes came through references to specialist services outside the organisation either in strategies to inform employees about services or through formal arrangements for referral. One of the recommendations about employee incentives comes out of health research into the effectiveness of behaviour change strategies (National Institute for Health and Care Excellence 2008b). Some texts suggested that employees should be trained to provide advice and guidance and others that information leaflets should be readily available.

Table 5.2: Recommendations to organisations: advice relating to health activities (top 5)

Item	Number
Employee incentives	6
Publicise services offered by local health services	5

Item	Number
Provide health advice and guidance	5
Tailor the support to individual needs	4
Refer to specialist services	4

A smaller group (n=7) made recommendations about mental health promotion (see Table 5.3). The importance of job control emerges as a strong theme. This covers the choices employees make as to how they carry out their work (e.g. flexible work schedules), and the design of jobs by the organisation so they are varied as well as reasonable in terms of workload. The documents emphasise the value of employees having some influence on how jobs might change as well as being supported to change through career progression. Fairness also appeared as a significant theme, as indicated by references to disciplinary procedures, whistle blowing and anti-bullying policies. Managers were key figures in mental health promotion. They were exhorted to set a good example by taking breaks, holidays and a full lunch hour. Since work can promote mental health, managers were encouraged to ensure that employees came to work and absences were followed up. This would contribute to creating an attendance culture. More broadly, the policy documents advocated for the development of a supportive management culture. Finally, some documents (n=3) recognised work as a social environment and encouraged team building activities in the workplace, such as sports and fundraising events.

Table 5.3: Recommendations to organisations: programmes to prevent mental illness (all)

Item	Number
Establishing flexible work schedules	6
Establishing fair employment policy, focus on disciplinary procedures	3
Encourage managers to set a good example	3
Create an attendance culture	3
Design jobs well	3
Consult staff on job changes	3
Develop social supports	3
Support career progression	2
Establish whistle-blowing policies	2
Increase job control	1
Establish anti bullying policy	1
Promote a supportive management style	1

Five documents made recommendations to improve the physical health of employees (see Table 5.4). These addressed issues concerning physical activity and healthy eating. Making adjustments to the physical environment, such as setting the lifts to stop at every other floor and encouraging the use of stairs, was the most usual recommendation. Promoting physical activity to and from work as well as during work hours was common across the documents. Both what people ate and how they ate were the focus when recommending policies for healthier food consumption.

Table 5.4: Recommendations to organisations: programmes to promote physical health (all)

Item	Number
Adjust the environment to promote physical activity	4
Institute physical assessment processes	3

Item	Number
Promote active travel to work and meetings	3
Healthier options offered in canteens and vending machines	2
Encourage taking of breaks and stretches at desk	2
Clean facilities to support safe food preparation	1
Organise physical activities in the lunch break	1
Provide an eating area to encourage eating away from the desk	1

The majority of the documents (n=14) mentioned evaluation or evidence (see Table 5.5). The outcomes identified by the three documents promoting measurement included levels of sickness absence and improvements in productivity, as well as increased physical activity and uptake of healthy foods. One document (Bajorek et al. 2014) suggested that improvements to corporate image and reputation could also be assessed. Three documents recommended that evaluations of employee wellness programmes could be a key part of corporate reporting.

Table 5.5: Recommendations to organisations: evidence and evaluation (all)

Item	Number
Evaluate the programme	10
Invest in evidence-based interventions	7
Measure and report outcomes	3
Adjust the programme in the light of the evaluation	3
Corporate reporting	3

Bajorek et al. (2014) was the major contributor of recommendations to governments, with ideas about how to incentivise corporations to promote health, either through regulation or the tax system. *Healthy work: evidence into action* by Vaughan Jones and Barham (2010), along with others, advocated for a governmental role in funding research and creating an evidence base for workplace health promotion programmes.

Table 5.6: Recommendations to government (top 5)

Item	Number
Tax incentives	5
Invest in and promote evidence based interventions	4
Evaluate programmes	3
Benchmarking	2
Regulation for reporting	2

Barriers

Only five documents discussed the barriers to workplace health promotion. To help organisations overcome barriers, each has a corresponding recommendation in the policy documents; for example, most of the texts emphasised the endorsement of senior management at the early stage of planning.

Table 5.7: Barriers at the planning stage

Item	Number
Lack of senior management engagement	3
Lack of business case	3
Not integral to the organisations' vision and strategy	2
Lack of employee interest	1
Underdeveloped action plan	1

Table 5.8: Barriers at the evaluation stage

Item	Number
Failure to evaluate adequately	2
Difficulties in measurement	1

Table 5.9: Barriers at the implementation stage

Item	Number
Lack of resources	4
Lack of effective communication	1
Unrealistic time frames	1
Attempting to implement too many strategies	1
Lack of relevant knowledge and experience	1

6 Combining the evidence

Cross-study synthesis approach

We compared the key characteristics identified from the systematic reviews, the views studies and the policy documents against the entire Wierenga et al. (2013) framework and then against each other. Although all of the characteristics were identified in the thematic synthesis of people's views, only four characteristics were identified across reviews, studies of participant views and policy documents. Overall, several characteristics have been identified in two of the three sources of evidence, highlighting gaps for future policy development and research. These comparisons appear in Table 6.1 and are discussed in more detail below.

Key characteristics identified from effectiveness reviews, views studies and policy documents

Table 6.1: Workplace health characteristics identified in effectiveness reviews, views studies and policy documents

Implementation characteristics	Number of systematic reviews identifying this characteristic (Source: 9 reviews undertaking moderator analyses)	Number of views studies identifying this characteristic (Source: 10 views studies)	Number of policy documents identifying this characteristic (Source: 17 policy documents)
Characteristics of the organisation			
1. Managerial support		7	14
2. Channels of communication		7	3
3. Organisational support		3	14
4. Financial commitment	1	3	4
5. Policy integration	1	2	
6. Policy of continuous improvement	1		
Characteristics of the implementer			
7. Implementer's approach		5	
8. Implementer's job position	1	4	
Characteristics of the intervention programme			
9. Ease of uptake	1	6	3

Implementation characteristics	Number of systematic reviews identifying this characteristic (Source: 9 reviews undertaking moderator analyses)	Number of views studies identifying this characteristic (Source: 10 views studies)	Number of policy documents identifying this characteristic (Source: 17 policy documents)
10. Tailored/individualised intervention	1	3	
11. Internet/web/PC/text		4	
12. Content	3	4	
13. Advice		3	1
14. Intervention duration/dose	3		
Characteristics of the recipient			
15. Acceptability	1	10	
16. Accessibility	1	7	5
17. Structures to promote social support	1	5	3
18. Employee engagement	1		

Four characteristics that were either seen or thought to influence success were reported across all three evidence sources, these included:

1.   Financial commitment on the part of the organisation;
2.   The ease with which an intervention can be taken up by participants;
3.   The accessibility of an intervention for participants; and
4.   The structures available for participants to be supported.

Characteristics reported in two different evidence sources

Four characteristics were identified in policy documents and views studies as being important but have not yet been evaluated. These include managerial support, channels of communication, organisational support and giving of advice.

Five characteristics were identified in the systematic reviews and views studies but have yet to be discussed in policy documents. These include the integration of workplace health into corporate policy, the intervention provider's job position, the provision of a tailored/individualised intervention, the content of an intervention and its acceptability.

Characteristics reported within a single evidence source

Finally, five characteristics were identified in only one source, suggesting a need to examine further whether they are appropriate to incorporate as key characteristics of workplace health programmes. Analyses within the systematic reviews identified that workplace health outcomes were moderated by continuous improvement policies, by intervention duration/dose and by employee engagement. However, these characteristics were not mentioned in any views studies, nor were they part of workplace health policies. The importance of the intervention implementer's approach and the use of Internet

technologies were discussed in views studies; however, these have yet to be evaluated in systematic reviews or integrated into policy documents.

These comparisons of characteristics across different types of evidence suggest which characteristics are robust (i.e. supported by multiple types of evidence). But each of the characteristics was described in different ways, suggesting the potential for any one characteristic to be evidenced differently across organisations. The most frequently occurring characteristics are described in more detail below.

Characteristics of the socio-political context

None of the three sources of evidence identified the importance of any socio-political factors, such as the compatibility of the programme with societal developments or a competitive business environment.

Characteristics of the organisation

Managerial support

Evidence from seven views studies and 14 policy reports suggests that 'managerial support' is a key mechanism for the successful implementation of workplace health. Characteristics related to all levels of managerial roles/responsibilities and are applicable to companies of different sizes and scales. Key points have been highlighted:

- **Managers could encourage staff** to participate in workplace health, such as web-based health programmes, blood pressure screenings, weight management or mental health initiatives, or could support employees' career progression.

- **Managers could provide ongoing support and 'follow up'**: follow up, such as reminders and communication about workplace health, is perceived as leading to ongoing commitment from staff.

- **Managers or employees could take on the role of promoter**: a more 'hands on' approach is thought to lead to successful integration of workplace health schemes/incentives.

- **Motivation by managers** appears to lead to successful engagement from staff.

- **Promoting the workplace message**: when managers successfully promote the value and benefits of workplace health, employees feel encouraged and valued.

- **Managers need support and training to be supportive**: additional support and tailored training for managers (e.g. wellbeing schemes) may be useful.

- **Understanding and implementing a work/life balance**: greater efforts are needed by senior management to understand and implement workplace health into working hours.

- **Focus on the wellbeing and welfare of employees**: managers could foster employee responsibility, allowing them to have more job control, encouraging career progression and consulting staff on jobs changes.

- **Managers as positive role models**: policy reports recommended that managers set a good example by taking a positive, non-dismissive approach to workplace health.

Channels of communication

Evidence from policy documents (n=3) and views studies (n=7) suggest that organisations can support workplace health by utilising existing channels of communication on health and wellbeing. The following recommendations can be drawn:

- **Publicise local health services**: the workplace may offer an important site for awareness raising and referrals to public health programmes offered in the community.

- **Link workplace health activities to existing company services:** workplace health could be integrated into existing employee assistance and occupational health services.

- **Integrate information about health checks: the** content should combine the workplace health topic being addressed and companies' existing polices on health and safety.

- **Build links:** it may be helpful to build connections and engage with external organisations and communities as part of workplace health tool development.

Organisational support

Stakeholder views studies (n=3) and policy documents (n=14) suggest that the presence and/or absence of organisational support at an executive or directorial level is an important factor when delivering workplace health programmes. The following observations were noted:

- **Embed workplace health programmes:** interventions may work better if embedded into existing organisational strategies, as this was perceived to indicate that the health and wellbeing of staff was an integral component of the structures and policies in the organisation.

- **Organisations need to take a holistic/direct interest:** it was perceived as important that companies supporting their employees take an interest in 'their health' and not just general 'fitness to work'.

- **The directors and senior leadership team should be involved in workplace health:** workplace health may benefit from approval and implementation by senior employers during programme initiation so that it fits into the day-to-day functions of the business.

- **Organisations have a role in supporting the infrastructure of workplace health throughout the company:** organisations may benefit from providing support via communication across units and provision of staff assessments to help planning.

- **Organisations can support workplace health by engaging 'champions':** supporting the investment in a 'champion' role could pay off over the longer term, where that person can eventually hand over control to staff.

Financial commitment

To support workplace health initiatives, policy documents (n=4) and views studies (n=3) and one systematic review identified the need to ensure sufficient resources, materials and equipment. Three methods of achieving this were suggested:

- **Commitment to resources, financial support and sustainability:** identifying and assigning budget and staffing resources to workplace health initiatives may demonstrate senior leadership commitment. Commitment in resources can build the groundwork for culture change and support sustainability of workplace health initiatives. One systematic review reported improved outcomes when employees were paid during the intervention.

- **Establishing the financial case for workplace health:** a lack of resources and/or budget can undermine successful implementation of workplace health programmes.

- **Investing in evidence-based interventions:** policy documents (n=4) recommend a governmental role in funding research and supporting evidence-based workplace health.

Policy integration

Two views studies and one systematic review identified policy as a key characteristic of effective workplace health:

- **Integrate workplace health into existing workplace policies**: people preferred a continuous workplace health policy approach and greater improvements in outcomes were observed when this happened.

Characteristics of the implementer

Implementer approach

Five views studies suggested that the approach of the implementer made a difference to participants' engagement with workplace health. The general consensus from employees was that implementers need to have a level of professionalism, be knowledgeable about the topic and use positive methods to engage participants:

- **'Down-to-earth' approach**: a relaxed, friendly approach should be taken in order not to alienate employees, particularly when broaching sensitive topics.

- **Previous experience with health issues helps**: workplace health may be taken more seriously by programme recipients if the implementer has an educational background in or training on the health issue being addressed.

- **A good balance between listening and encouraging**: If participants feel that they are being 'talked down to' rather than experiencing a participatory approach, this may become a barrier. Power imbalances between the implementer and participant need to be explicitly addressed, especially if the implementer is a work colleague or manager.

- **Approach of peer advisers**: peer advisers were perceived as most helpful when they were approachable, delivered information consistently, adhered to the training and acted with an overall degree of professionalism.

Implementer's job position

Evidence from views studies (n=4) and a systematic review (n=1) suggested that successful delivery of workplace health was influenced by the implementer's job position.

- **A workplace health 'champion'**: could support or help to lead the strategy overall and encourage fellow workers to take part, and could improve outcomes.

- **Potentially inappropriate/unsustained support of senior managers by junior staff**: when delivering workplace health it was preferable that the appropriateness of junior staff providing intervention support to senior managers was assured; likewise junior staff were thought to need additional support to do this.

- **Peers or external implementers**: which are most appropriate to provide the intervention may be dependent on the sensitivity of topics. Whilst one systematic review found that implementers who were company employees were more effective than implementers external to the company, other evidence suggested that peers might not be appropriate when dealing with sensitive topics. Thus, the selection of providers should reflect the nature of the health programme being delivered and to whom.

- **Employee assistance programmes**: workplace health initiatives should not be part of employee assistance programmes: managers need to ensure that the programmes are not tied to job performance or appraisals.

Characteristics of the intervention programme

Ease of uptake

Views studies (n=6), policy documents (n=3) and one systematic review suggested that planning and careful implementation can help to increase uptake:

- **Choosing the right time**: employees found it easier to participate in programmes when there was a degree of flexibility, when sessions were provided during work

time, allowing for shifts and break times, and when there was time to get into a 'new routine' after a holiday or break from work.

- **Fitting round employee's lifestyles/external time constraints**: it was thought **that** for workplace health to work successfully, management needed to consider external influences such as family and other commitments outside work.

- **On-site facilities**: On-site schemes were perceived as important for positive and ongoing commitment from employees. One systematic review found that compared to off-site schemes, on-site schemes were associated with an increase in effectiveness.

- **Alternative 'quiet time'** sessions could also be considered as part of workplace health.

- **Intervention methods**: employees felt that they engaged more with health schemes when a 'tick sheet approach' was implemented, enabling them to monitor their progress or thoughts on the programme. Dissemination of health information through email or web links also received positive feedback.

- **Develop social supports and wide-reaching programmes**: social support may benefit managers and employees, by allowing them to implement, recruit and/or participate in workplace health programmes.

Tailored/individualised intervention

Views studies (n=3) and one systematic review suggested that workplace health programmes were more acceptable to participants where they were personally tailored by type of health advice, training schedules or information. However, this level of tailoring might need to vary, depending on the size and scale of the businesses.

- **Detailed, targeted, tailored information**: providing tailored information to staff could see benefits in the form of staff committed to the schemes and better outcomes.

- **Health devices**: administering devices such as pedometers also adheres to the principle of tailored targeted health. Each employee would have access to their health data so that they could see improvements in fitness levels.

- **Contact with the intervention provider**: increased participation by employees has been vastly improved when regular contact with an intervention provider has been allowed. This builds up individualised relationship with participants (managerial and employees).

Internet/web/PC/text

Views studies (n=4) indicated that the use of technology supported engagement in workplace health initiatives. In particular, people found that:

- **Using a 'tick box approach' via the PC** was a user-friendly health management tool for older employees (45-68 years).

- **Text messages and email reminders** were considered to be positive and attractive features, and not intrusive, for participants in an e-health scheme.

- **Use of computer applications**: these were found to be beneficial, e.g. a health manager tool used by older employees (45-68) for self-monitoring in a workplace setting.

- **Health information via the intranet**: health information posted via the intranet had a high volume of hits, highlighting the value of sharing current news articles or health information.

Content

The views of participants (n=4) who were engaged in workplace health programmes provide a view on the format and the type of activities they preferred to engage in and when, supported by evidence in three systematic reviews. These included:

- **Using strategies to market workplace health programmes**: material which was detailed, targeted and eye-catching was a positive way to motivate employees.

- **Workplace health going beyond health and safety issues**: men felt it was more important to focus on the health topic (e.g. prostate cancer) than health and safety issues.

- **Focus on specific health matters and provide health materials**: although emailing and web information were perceived as effective, information booklets and diaries were also considered to be very helpful tools, as were interventions targeting specific health concerns compared to generalised approaches.

- **Make appropriate modifications to physical activity workplace health interventions**: Greater effectiveness was observed in outcomes when then the content of physical activity interventions was matched to individual performance and capabilities, including accessible forms of activity in the form of walking.

Advice

Views studies (n=3) and one policy document suggested a need for workplace health programmes to provide helpful and tailored forms of advice and information, via different channels of communication. For example:

- **Providing advice**: receiving tailored advice and encouragement may boost morale.

- **Disseminating advice**: providing advice via booklets and/or diaries was seen as a successful tool for engaging employees.

- **Appropriate use of external versus peer providers**: although peer providers were not discouraged, due to proximity in the working environment, participants would be less likely to seek their support, suggesting that employers may want to consider peers from external sources.

Intervention duration/dose

Three reviews provided insight into the role of intervention duration or dose on the potential success of workplace health interventions. The findings suggest that it might be useful to:

- **Consider intervention frequency and duration when designing workplace health programmes**: increased frequency of contact was found to improve outcomes in one systematic review, a finding supported in a views study that suggested that regular contact with an intervention provider improved participation. However, the length of interventions may need to be monitored; longer programmes (more than 12 weeks) were associated with both positive and no effects.

Characteristics of the recipient

Acceptability

All ten views studies and one systematic review provided evidence on the acceptability of workplace health interventions:

- **Ensure an appropriate location**: when initiatives were organised within the workplace, they were considered highly favourably and more likely to succeed by the employees.

- **Consider participants' age**: workplace health may be more effective for young people, as two reviews observed a reduction in effectiveness for older employees.

- **Think about gender-targeted interventions**: programmes focused only on men's health gained a positive response from male employees, achieved high levels of active participation and provided a platform for men to discuss personal health issues. However, reviews examining the influence of female gender on outcomes found no significant relationship, while another found a trend for a detrimental effect. While no views studies examined preferences for female-specific workplace health initiatives, they did suggest that some men preferred gender-specific interventions.

- **Positive environment and participation**: when efforts were made by management to create an environment that promoted and permitted participation, without it being a hindrance to work, employees were more likely to engage.

- **Intervention integration**: when workplace health programmes were initiated by senior management, and integrated into working structures, this could lead to greater acceptability by employees, encouraging them to take part.

- **Reducing barriers to participation**: these include allowing time for employees to participate, motivating and supporting employees who show an interest, prioritising the health of employees, using the workplace as a location for initiatives, providing relevant training for exercise equipment, installing facilities such as shower rooms to encourage healthy behaviour (walking or cycling to work), and providing better facilities for health screenings (private booths).

Accessibility

Views studies (n=7) policy documents (n=5) and one systematic review addressed accessibility. This was apparent in two ways: physical access to the health programmes at work and how programmes were scheduled into the working day. The studies showed what influenced employers and managers:

- **Location and environment**: participants valued having health programmes situated at work, and the provision of on-site physical fitness centres was significantly associated with higher effects in the systematic reviews.

- **Quality of equipment and training**: uptake was thought to be encouraged by easy access to on-site gym/exercise equipment, attractive green spaces around the worksite, and gym training to help users improve their confidence.

- **Time to participate**: to ensure successful and ongoing participation, managers need to examine how this can fit into different work patterns such as shift work/part-time work, demands and obligations, or limited free time.

Structures to promote social support

Without social support from peers and higher levels of management, it was suggested that the workplace health programmes would be less likely to succeed. Views studies (n=5), policy documents (n=3) and one systematic review discussed the support structure provided to employees, and whether pre-existing support, or support implemented within the initiative, greatly influenced the participants' perceptions.

- **Tailored gender-specific support**: studies focused on men only showed that gender-specific social support networks were vital to an open discussion about men's health (e.g. prostate health promotion).

- **Workplace social supports:** studies highlighted the need for developing robust social support networks. One review examined the impact of group intervention format on effects, finding a positive trend. Views studies also suggested that offering group services and committing to an intervention as part of a group was a beneficial characteristic.

- **Transparency:** interventions taking place in an academic setting showed a collegial support for fellow participants, where open discussion of the health programmes occurred, creating a platform for support and encouragement.

7 Discussion

Answering the research question(s)

Our review sought to answer an overarching question 'What are the important characteristics of successful workplace health interventions?' by posing five sub-questions:

1. What is the evidence available from systematic reviews for the effectiveness of workplace health interventions in improving health outcomes?
2. Does evidence available from systematic reviews indicate that workplace health interventions improve business outcomes such as productivity, presenteeism/absenteeism and reduced sick time?
3. What evidence is available from systematic reviews regarding the relationship between evaluated processes of workplace health intervention implementation and health or business-related outcomes?
4. What are workplace stakeholders' views about the barriers to and facilitators of effective workplace health?
5. What are the characteristics of successful/unsuccessful workplace health interventions suggested by current policy?

A systematic review of reviews examining 24 systematic reviews of workplace health interventions with statistical syntheses was undertaken to address the first three sub-questions. The findings from this review suggest that the majority of workplace health programmes are effective and produce modest beneficial effects in terms of both health and business outcomes, with standardised mean differences lying between 0.05 and 0.30 in the majority of reviews. When looking at whether specific characteristics influence workplace health success, the findings suggested that no type of intervention was more effective than any other in improving outcomes. However, evidence from two reviews suggested that workplace health programmes appear less effective when delivered to older employees. The findings from three systematic reviews found that workplace health initiatives were more effective when a specific condition was targeted. The findings further suggested that specific factors were related to positive effect sizes, including: financial commitment; the intervention provider's job position; tailored interventions; appropriate location; adequate contact time with intervention providers; targeting to relevant groups; and group/social support. These characteristics do not appear to show any larger effects than other factors examined, such as the use of formative evaluation, graded tasks or organisational policy change. These latter characteristics were not identified in research with stakeholders; however, this may be because these factors are more important to senior managers and directors, stakeholders not well-represented in the research.

A systematic review of 10 research studies of stakeholder views was conducted to address the fourth research sub-question above. Several characteristics were identified, operating across a range of workplace dimensions. These included characteristics related to: intervention recipients; the ways an intervention is designed; the person providing the intervention; and the role of the organisation. Specific characteristics reported most commonly across studies included: managerial support; deliverer approach; ease of uptake/accessibility; tailoring the interventions; and social support. The full range of organisational, intervention, provider and recipient characteristics identified suggest that characteristics linked to a successful workplace health promotion intervention are influenced by stakeholders at all levels of an organisation (workers, middle and senior management, and owners/directors). Stakeholders can influence the design/development, delivery and evaluation. Workers, union representatives, managers, and intervention providers identified several factors that could influence their success, e.g. that organisational structures and support were helpful in supporting workplace health interventions. Further, the findings also suggested that the success or failure of a programme could also be influenced by the quality of personal communications and support between all stakeholders (i.e. workers and managers; workers and providers; and providers and managers/the organisation).

A synthesis of 17 policy documents informed the fifth research sub-question. This indicated that, in general, policy documents mirrored the characteristics identified in the views studies. However, the extent to which policy documents were developed from research evidence was unclear. The recommendations tended to focus on guidance for project implementation, rather than on ways to impact upon specific health issues.

Looking across all three syntheses of reviews of interventions, stakeholder perspectives and policy documents, several important characteristics of successful workplace health promotion programmes can be identified; however, somewhat fewer of these have been rigorously evaluated in reviews which undertook moderator analyses. The characteristics identified include:

- managerial support
- organisational channels of communication
- organisational support
- financial commitment
- the intervention provider's approach
- the intervention provider's job position
- ease of uptake of the intervention
- tailored/individualised intervention
- internet/web/PC/text format
- content of the intervention
- advice provided
- stakeholders' perceptions of an intervention's acceptability
- stakeholder's perceptions that an intervention is accessible
- structures to promote social support.

An exploratory comparison of these findings across views studies, effectiveness reviews and policy documents found four characteristics common to all three sources of evidence: financial commitment, ease of uptake, intervention accessibility and social support structures.

Each of these characteristics varies with respect to how it can occur in a workplace setting. For example, 'managerial support' can mean support that managers provide to their staff as well as training support that they receive themselves to be able to support staff members. This again is a probable result of a varied set of complex interventions. However, this variation in the way key characteristics are interpreted also suggests a variety of ways in which they could help a workplace health programme to be successful.

It is important that the strengths and limitations of the review's methods and of the studies included in this synthesis are also considered.

Strengths and limitations of the review's methods

Some limitations to this work should be considered. For example, research on workplace health interventions is vast and complex, varying on different dimensions e.g. from intervention in one business to multi-level interventions administered regionally and offered across multiple worksites. While this results in the accumulation of a broad evidence base on which to draw, it also creates uncertainties in understanding whether all interventions are effective in all settings with all participants and whether perspectives identified by one group of stakeholders for one particular workplace health intervention apply to other stakeholder groups.

The search was successful in capturing relevant evidence on effectiveness, stakeholder views and policy documents to answer the review questions. For the intervention views, we undertook a comprehensive search going back 20 years. The view studies were limited to the past five years, a reasonable period to account for the likelihood of stakeholder perspectives changing more rapidly over time.

It is important to note that the findings from the review of reviews were reported only for factors that were examined in two or more reviews (age, gender, targeted on intervention, study design). This seemed the most reasonable method to ensure that the conclusions were taken from a robust set of studies.

Strengths and limitations of the included studies

This project allowed the opportunity to examine the characteristics of successful workplace health promotion interventions from a range of sources of evidence. The particular strengths of the project include:

- Extensive searching for evidence across several sources

- Utilising a well-researched area by careful seeking and assessing evidence from well-conducted systematic reviews

- Triangulation of sources of evidence to cover effectiveness (from systematic reviews), acceptability (from views studies) and workplace-wide implementation (from policy documents).

Some limitations to the dataset were also identified. For example, evaluation studies of interventions with small- to medium-sized businesses are lacking, as are studies accessing the views of stakeholders in these settings. This is an important perspective to consider in the future design, delivery and evaluation of workplace health interventions, as well as in any future national workplace health promotion award.

It was apparent from the review of reviews and the views studies that not all health topics have been researched. Physical activity and mental health interventions predominated this set of studies, while other public health topics, such as healthy eating, cancer prevention and cardiovascular risk reduction were rarely seen. However, the policy documents, which echoed most of the findings from the stakeholder 'views' studies, were not focused on particular health topics.

There is very little evaluation of costs across studies. Information on the cost-effectiveness of various alternative interventions could help businesses decide which intervention is most appropriate for them. Similarly, it is not clear whether all 'business outcomes' relevant to all stakeholders have been researched: stakeholders may view lower staff turnover or lower business health expenditure costs as important as 'presenteeism' or 'absenteeism'. It has been argued that all stakeholders need to be at least consulted in order to ensure that relevant and appropriate interventions are designed and implemented (Oliver et al. 2008).

The length of time over which studies examined outcomes varied. There was a lack of follow-up in both interventions and views studies, which limits the amount of information available concerning the sustainability of workplace health interventions or changes in stakeholders' views over time. This has implications for the extent to which an intervention can be shown to work over the long term (O'Mara-Eves et al. 2013).

Finally, the perspectives from senior managers, owners or board members have not been researched. This is a key group of stakeholders who hold considerable decision-making authority over health in their workplace. Some studies suggest that small- to medium-sized employers will make decisions about implementing workplace health within their worksite based on its feasibility (Hannon et al. 2012; Hughes et al. 2011). Thus there is a clear gap in understanding whether the identified characteristics are also shared by these stakeholder groups.

The findings from this report raise key points that have implications for business stakeholders and researchers.

Implications for businesses

Several of the identified characteristics relate directly to the business organisational structure and support.

Findings from the evidence located across this review highlight the importance of a financial commitment from businesses. This could include training, the use of highly skilled intervention providers, incentives for employees, and committed work time for workplace health.

All three sources of evidence also noted the need for an intervention to be embedded into the workplace. This could mean integration into policy, into the setting, into the work day, and across all stakeholders (workers, union representatives, middle and senior managers, owners and board members). Thus workplace health would become a cultural norm available to everyone, and expected by everyone to be offered and to be taken up.

The need for both formally and informally organised structures for social support is apparent across all three sources of evidence. This refers to peer-to-peer as well as manager-to-worker support. Social support, job control/empowerment and work engagement are associated with lower depression rates and better self-reported health (Arneson et al. 2012; Torp et al. 2013).

Workplace health promotion is an ongoing issue. Interventions need ongoing monitoring and views need to be sought and outcomes measured more than once during the intervention in order to demonstrate whether an impact (positive or negative) is occurring. Sustainability could be addressed by integrating workplace health into existing policies and systems; the appropriate use of these to assess needs and evaluate progress rather than to penalise people could better monitor the success of an intervention.

Specific characteristics were also identified that related to intervention design and delivery. For example, interventions need to be tailored to what is best for both recipients and for the organisation. Identifying which factors make it acceptable to all stakeholders (e.g. appropriate location, target audience) will also help to ensure its success.

Finally, it is important to have the 'right' person to provide the intervention. Peers can be an important source of support but there is also a power dynamic between managers and workers that must be considered. Businesses designing a workplace health strategy are advised to engage all stakeholders in order to determine how best to involve peers, and the impact (if any) of the intervention provider's job position, approach and training/support on the success of an intervention.

Recommendations for future research

Some recommendations for future research have emerged from this work. These encompass: undertaking additional economic evaluations; focusing on interventions situated in small- and medium-sized businesses; seeking a wider range of stakeholder perspectives on the factors that influence workplace health interventions; and utilising this wide stakeholder base to consult, collaborate or lead in the design, delivery and evaluation of workplace health interventions.

The reviews of interventions revealed few economics evaluations. The findings from this work suggest that cost evaluations need to be incorporated into workplace health intervention studies, in order to establish whether they are cost-effective.

The views research predominantly sought the views of workers and managers. However, the views of senior managers, owners and board members are also needed, in order to understand their perspectives on what fosters a successful workplace health intervention.

Related to this, it was not clear in the reviews of interventions whether all stakeholders provided input into what constitutes important 'business outcomes'. Future research could explore relevant 'business outcomes' from all stakeholders.

Most of the studies included in the reviews of interventions, and in the studies of participants' views, were undertaken in large- or enterprise-sized businesses. There is also a need to evaluate workplace health interventions in small- and medium-sized businesses; further, studies of participants' views about successful workplace health interventions are needed to understand what factors influence participation and changes in health outcomes.

Finally, the extent to which interventions were influenced by all stakeholders is unclear. The studies of workplace health interventions included in the review of interventions did not clearly describe which stakeholder groups were consulted or involved in decision making about workplace health interventions. Such involvement of stakeholders, particularly workers, is an important aspect of workplace health (Burton 2010). To ensure that workplace health is indeed a 'combined effort of employers, employees and society to participate in the whole process of workplace health' (Kuhl and Van den Broek 2013), there is a need to examine the engagement by all stakeholders in the design, delivery and evaluation of an intervention, and whether that engagement is to lead, collaborate, consult on or merely be informed about an intervention (Brunton et al. 2015a,b; O'Mara-Eves et al. 2013).

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9 Appendices

Appendix 1: PubMed search string

PUBMED SEARCH 06.01.15

("Workplace"[Mesh]

OR

(workplace[Title/Abstract]

OR

worksite[Title/Abstract]

OR

employer[Title/Abstract]

OR

employee[Title/Abstract]

OR

employees[Title/Abstract]))

AND

(("Review" [Publication Type]

OR

("systematic review"[Title/Abstract]

OR

"meta-analysis"[Title/Abstract]))

Publication date from 1995/01/01 to 2015/12/31

Appendix 2: Coding tool: characteristics of reviews

1 Country

International / Not stated

If selection criteria in relation to country in which primary studies are conducted is not provided assume that the review includes international research.

OECD only

Current membership:
Australia; Austria; Belgium; Canada; Chile; Czech Republic; Denmark; Estonia; Finland; France; Germany; Greece; Hungary; Iceland; Ireland; Israel; Italy; Japan; Korea; Luxembourg; Mexico; Netherlands; New Zealand; Norway; Poland; Portugal; Slovak Republic; Slovenia; Spain; Sweden; Switzerland; Turkey; United Kingdom; United States.

Non-OECD countries only

UK only

US only

European only

Canada only

Germany only

Other (please specify)

2 Number of included primary studies
N.B. If available report total number of participants across studies.

0

1-10

11-20

21-30

31-40

41-50

>50

Not stated

3 Primary study design (tick all that apply)

Trials/outcome evaluations

Qualitative studies

Observational studies

Process evaluations

Other (please specify)

Mixed methods

Not stated/unclear

4 Is target population described? (tick all that apply)

Is the intervention TARGETED (i.e. intended) for a specific demographic? E.g. middle aged males
Do not use for general description of population sample.

No

Age group (please specify)

Gender mix (please specify)

Education (please specify)

Ethnicity (please specify)

SES (please specify)
e.g. blue collar, white collar

Staff categories (please specify)
e.g. employees, executives, managers

Other (please specify)

5 Size of business

Not stated

Micro (1-10 employees)

Small (11-50 employees)

Medium (51-250 employees)

Large (251-1000 employees)

Enterprise (>1000 employees)

Other (please specify)

6 Health behaviour addressed (tick all that apply)

Alcohol use

Breastfeeding

Healthy eating/nutrition

Sexual risk

Injury prevention (seatbelt use)

Physical activity

Restricted calorie intake
e.g. dieting for weight loss

Smoking

Stress management

Substance abuse
Use for illegal substance use

Other

Not stated/unclear

7 Health condition addressed (tick all that apply)

Asthma/respiratory disease

Cardiovascular disease
(cholesterol, blood lipids, blood pressure, heart rate, chronic venous insufficiency, varicose veins, deep vein thrombosis)

Cancer

Diabetes

HIV/AIDs/STIs

Injuries

Mental ill health (anxiety, depression, suicide)

Musculoskeletal condition
Use for back pain, neck pain, upper extremities

Obesity/overweight

Physical/general health

Wellbeing

Other

Not stated/unclear

8 Intervention type (tick all that apply)

Not stated

Advice

Bio-feedback

Counselling

Education

Environmental modification/Change in work environment

Exercise programme

Group therapy

Incentives/prize/lottery

Legislation/regulation

Medical /assistive device *e.g. lumbar support*

Resource/service access

Risk /needs assessment
assessing proportion at risk within workforce

Screening/testing
assessing risk to the individual

Skill development

Social support

Other

Multi-component (not otherwise specified)

9 Outcomes measured *(tick all that apply)*

Attitudes/intentions

Behaviour

Clinical/physical health

Knowledge

Mental health

Wellbeing
Use for quality of life (QoL) outcomes. Use for work-life balance outcomes.

Other *(please specify)*

Not stated/unclear

10 Business outcome

None measured

Absenteeism/sick leave

Productivity

Financial impact
savings, losses and cost effectiveness

Other

11 Setting focus

Workplace setting only

Workplace setting is one amongst a number of settings
Other settings could include for example:
(1) Media and educational campaigns
(2) labeling and consumer information
(3) taxation, subsidies, and other economic incentives;
(4) schools, universities and colleges
(5) local environmental changes
(6) direct restrictions and mandates
(7) churches or religious institutions
(8) clubs, interest groups or community groups

12 Pooled effect sizes (tick all that apply)
(For all results, report intervention type and outcome. Includes a meta-analysis providing average effect size across studies. E.g. SMD, Cohen's d, hedges g, glass' delta, OR, RR, r.)

No statistical synthesis of pooled effect size undertaken

Significant positive effect size
(i.e. Confidence intervals around the effect size clear the line of no effect)

Positive direction of effect
(i.e. Intervention shows beneficial although not statistically significant effects)

No difference between intervention group and comparison group
(i.e. effect size is zero)

Negative direction of effect
(i.e. Intervention is harmful or produces worse outcomes than control)

Significant negative effect size
(i.e. Confidence intervals around effect size clear the line of no effect)

Appendix 3: Coding tool: stakeholder views research

1. Stakeholder(s) providing views

Shareholder

Owner

Manager

Workers

Union representative

Other stakeholder *(please specify)*

2. Business sector(s)

Agriculture, forestry and fishing

Manufacturing and construction

Transport and storage

Accommodation and food services

Professional, scientific and technical activities

Admin and support service activities

Education, human health and social work

Other sector (please specify)

3. Barriers/facilitators of successful workplace health promotion
i.e. People said the intervention was successful (or not) because of the/its… (Please check all that apply, with supporting evidence from studies)

Acceptability

Accessibility
(e.g. participants cannot attend activities because of clash with workload/shift work/part-time work; or limited free time or flexibility)

Channels of communication

Ease of delivery

Engagement of managers
(i.e. in design, delivery, evaluation)

Engagement of workforce
(i.e. in design, delivery, evaluation; also e.g. for absence of decision-maker amongst implementers; high perceived level of control for intervention delivery by provider/implementer; level of engagement of implementers here)

Financial commitment
(e.g. evidence of sufficient resources, materials or equipment; organisational or managerial commitment in allocating sufficient resources to implement or sustain workplace health intervention)

Provider qualifications
(e.g. use for professional healthcare worker versus lay delivery)

Provider has adequate time for delivering intervention
(e.g. where adequate/inadequate time reported for providers to deliver the intervention or the workplace health programme is seen as an extra burden or workload)

Intervention duration or dose

Intervention single v multi-component

Intervention was targeted
(i.e. intervention is targeted at a particular health condition or demographic)

Intervention type
*(i.e. the particular type of intervention provided influenced its effectiveness, e.g. environmental changes, use of incentives, Internet, multi-componen*t)

Managerial support for intervention
(i.e. support by on-site, local or middle managers for the intervention)

Organisational support for intervention
(e.g. executive or directorial support for workplace health intervention; dissemination of information to managerial staff regarding business case for workplace health. Note: distinct from managerial support)

Policy support
(Intervention is supported through being written into policy, e.g. through policies or procedures to ensure universal application of programme across sites or outlets; continuous improvement or integration into existing health, safety or wellbeing initiatives)

Scheduling of workplace health activities
(e.g. Workplace health is more or less acceptable because it is scheduled into a break period, or because it extends the working day)

Structures to support social support
(e.g. interactions with workforce to promote workplace-wide social norms and social support)

Other *(Please specify)*

4. Any rigorous evaluation of stakeholder(s) views?

Yes, methods of measurement and analysis part of report

No, this is anecdotal/hypothesising on part of authors/unclear

Appendix 4: Coding tool: policy documents

Year of Publication
- 2007
- 2008
- 2009
- 2010
- 2011
- 2012
- 2013
- 2014
- Not stated

Type of Organisation
What kind of organisation has produced the document?
- University
  Think Tank
  Trade Union
  To include organisations that represent more than one trade union
- Government Department
  Regulator
  Could include organisations such as HSE
- Health Organisation
  Organisations whose primary aim is to promote health in the population
- Other

Method
Any information about what the recommendations from the document was based upon.
- Not stated
- Primary research
  Based on some form of primary research - this could include interviews with experts, surveys etc.
- Secondary research
  literature reviews etc.
- Other

Barriers to Workplace Health Promotion
tick all that are mentioned as problems for any policy to address
1.Barriers at Planning Stage
- Lack of Business Case
  Failure to make a case that resonates with employer concerns and business needs
- Lack of employee interest
- Lack of senior management engagement
- Not integral to Organisations' vision and strategy
  this is linked to idea of culture - may also include improving attitudes to health seeking behaviour more broadly amongst employees. Also healthy lifestyle is the default option - includes healthy food options in canteens, changes to workplace environments (stairs vs lifts), active getting to work promotions, flexible working (work/life balance, mental health).

- Not establishing the financial case
  linked to ideas about return on investment - making the case for resources.
- Underdeveloped action plan

2.Barriers at Evaluation stage
- Failure to evaluate adequately
- Difficulties in measurement

3.Barriers at implementation stage
- Lack of effective communication
  about the health and well-being programmes
- Lack of resources
  not just financial but also includes backing from senior management, and good co-ordination across workplaces.
- Unrealistic time frames
- attempting to implement too many strategies
- lack of relevant knowledge and experience
- No comprehensive solutions offered by providers

Recommendations to Organisations
Steps that organisations might take to overcome the barriers
- Develop a health and well being strategy
  includes developing support from senior management
- Supporting different size companies
  small, medium, large employers will need tailored assistance in implementing WHP programmes/tools
- Engaging Management
  Encouraging and engaging supervisors and managers at all levels should be involved in promoting health-supportive programs
- Employer/Employee Incentives
  encourage participation by offering incentives to set up WHP/well being programmes
- Develop action plan/ check list
- Signing up to 'Wellbeing' Pledge
  sign up to statement to intent 'well being charter'
- Establishing fair employment policy
  Establishing flexible work schedules
- Develop policy around intervention
- Make the business case
  Show benefits of supporting employee health programes
- Embed programmes in organisational strategies
- Training for management
- Enable participation during work hours
- Publicise services offered by local health services
- Encourage employee involvement in well being strategy development
- Provide health advice and guidance
- Tailor the support to individual needs
- Train staff to deliver health guidance and advice
- Increase job control

- Tell managers to set a good example
  e.g take proper lunch breaks, take all holidays etc
- Create an attendance culture
- Design jobs well
- Institute physical assessment processes
  esp for muskoloskeletal problems
- Employment law obligations
  employment law around stress - awareness of compensation issues etc
- Consult staff on job changes
- Support career progression
- Develop social supports
- Training for the employee
  managing stress and other health conditions
- Refer to specialist services
  e.g. counselling
- Establish anti bullying policy
- Whistleblowing policies
- Benchmark against recognised standards
- Develop risk assessment processes
- Conduct staff surveys
  to check on mental well being etc.
- Make reporting a breach of policy easy
- Communicate policies
- Adjust environment to promote physical activity
- Promote active travel to work and meetings
- Clean facilities
- Healthier options offered in canteens and vending machines
- Health policies part of induction process for new employees
- Improve staff awareness
- Identify needs
- Publicise programme
- Make programmes open to all
- Establish a co-ordinating group
  or co-ordinator for small orgs
- Identify budgets
- Integrate relevant systems and develop comprehensive strategy
- Eliminate recognised occupational hazards
- Change environment to align with health
- Promote well being through HR strategies
  including promotion, appraisal, recruitment, job design and job change
- Ensure equity of access to wellbeing programme
  important for those expected to experience stress e.g. shift workers
- Promote a supportive management style
- Target interventions based on population and work context
- Organise physical activities in lunch break
- Encourage taking of breaks and stretches at desk
- Provide eating area to encourage eating away from desk
- Link to relevant local and national policies
- Increase healthy behaviour through goal setting

- Invest in evidence-based interventions
- Corporate reporting
- Evaluate the programme
- Measure and report outcomes
- Adjust programme in light of evaluation

Recommendations to Government
Ways in which government might incentivise workplace health promotion
- Tax incentives
- Levy systems
  All employers are charged a levy and then those that run health and well being programmes can apply for grants collected from all orgs - thus incentivising orgs to run these programmes.
- Budget pooling
  collaboration between local stakeholders and agencies of government e.g. Sweden and local budget pooling for vocational rehabilitation
- Responsible procurement
  Government contracts only for those orgs that look after staff.
- Regulation
  Regulate what measures employers must provide, e.g. compulsory Fit to Work service.
- Benchmarking
  voluntary data reporting
- Regulation for Reporting
  Public disclosure of health and well being practices in organisations.
- Invest in and promote evidence based interventions
- Evaluate programmes
- Set up awards to recognise excellence
- Subsidies
- Develop core indicators
- Develop a database of ongoing research projects
- Other strategies
  Can include
  Investors encouraged only to invest in those orgs that have positive health and well being practices in place;kite marking and awards; organisational pledges

Country or Region
- UK
- Europe
- US
- Canada
- Australia
- Other

Organisational Sector
Can include size as well as sector such as manufacturing
- Specified
  Add details
- Not specified

Appendix 5: AMSTAR+ Risk of Bias Assessment Tool

Question	Rating	Comments
1. Was an 'a priori' design provided? The research question and inclusion criteria should be established before the conduct of the review.	Yes No Can't answer Not applicable	
1+. Were the aims/research question supported by an understandable and valid conceptual framework? The justification for undertaking the review should be clearly explained and sensibly linked to previous research evidence. The background should present a reasonable need for conducting the review.	Yes No Can't answer Not applicable	
2. Was there duplicate study selection and data extraction? There should be at least two independent data extractors and a consensus procedure for disagreements should be in place.	Yes No Can't answer Not applicable	
3. Was a comprehensive literature search performed? At least two electronic sources should be searched. The report must include years and databases used (e.g. Central, EMBASE, and MEDLINE). Key words and/or MESH terms must be stated and where feasible the search strategy should be provided. All searches should be supplemented by consulting current contents, reviews, textbooks, specialized registers, or experts in the particular field of study, and by reviewing the references in the studies found.	Yes No Can't answer Not applicable	
4. Was the status of the publication (i.e. grey literature) used as an inclusion criterion? The authors should state that they searched for reports regardless of their publication type. The authors should state whether or not they excluded any reports (from the systematic review), based on their publication status, language, etc.	Yes No Can't answer	

Question	Rating	Comments
	Not applicable	
5. Was a list of included studies (included and excluded) provided? A list of included and excluded studies should be provided.	Yes No Can't answer Not applicable	
6. Were the characteristics of the included studies provided? In an aggregated form such as a table, data from the original studies should be provided on the participants, interventions and outcomes. The ranges of characteristics in all the studies analyzed, e.g. age, ethnicity, sex, relevant socioeconomic data, disease status, duration, severity, or other diseases should be reported.	Yes No Can't answer Not applicable	
7. Was the scientific quality of the included studies used appropriately in formulating conclusions? 'A priori' methods of assessment should be provided (e.g. for effectiveness studies if the authors(s) chose to include only randomized, double-blind, placebo-controlled studies, or allocation concealment as inclusion criteria); for other types of studies alternative items will be relevant.	Yes No Can't answer Not applicable	
8. Was the scientific quality of the included studies used appropriately in formulating conclusions? The results of the methodological rigor and scientific quality should be considered in the analysis and the conclusions of the review, and explicitly stated in formulating recommendations.	Yes No Can't answer Not applicable	
9. Were the methods used to combine the findings of studies appropriate? For the pooled results, a test should be done to ensure the studies were combinable, to assess their homogeneity (i.e. Chi-square test for homogeneity, I^2). If heterogeneity exists, a random effects model should be used and/or the clinical appropriateness of combining should be taken into consideration (i.e. is it sensible to combine?).	Yes No Can't answer Not applicable	

Question	Rating	Comments
10. Was the likelihood of publication bias assessed? An assessment of publication bias should include a combination of graphical aids (e.g. funnel plot, other available tests) and/or statistical tests (e.g. Egger regression test).	Yes No Can't answer Not applicable	
11. Was any conflict of interest stated? Potential sources of support should be clearly acknowledged in both the systematic review and the included studies.	Yes No Can't answer Not applicable	

Appendix 6: EPPI-Centre quality assessment tools

I.   Quality Assessment (Surveys/Cohort studies) = QAS/C

QAS1. Was the sampling method appropriate / was the sample representative of the population under study?

Probability sampling - Score 1 (Including: simple random/systematic/stratified/cluster/two-stage/multi-stage sampling)

Non-probability sampling - Score 0 (Including: purposive/quota/convenience/snowball sampling)

QAS2. Was the measurement of the independent variable(s) likely to be reliably assessed and validated?
The dependent variables (sources) are those that are observed to change in response to the independent variables (e.g. age, sex).

Reliability pointers:

Do authors describe how the information was collected?

Do they describe ways they tried to ensure it was consistently collected?

Was data collection piloted?

Were data collection tools previously developed or tested?

Was data collection tape recorded and/or transcribed?

Validity pointers:

Do authors describe why they collected the information they did? Does it fit with the study's aims?

Was the information they collected what you would consider to be important to answer their research question?

Do they mention previous validation of tools?

Were previously piloted/developed tools used?

Was the target population involved in development of the tools?

Did researchers use more than one method of data collection?

Yes - Score 1

No - Score 0

Not applicable

QAS2a. Dependent variable(s) reliable/valid measurement?

Yes - Score 1

No - Score 0

Not applicable

QAS3. Did the study report any response rate?
If the reported response rate is below 60%, the question should be answered 'no'

No - Score 0

Yes - Score 1

QAS4. Did the investigator(s) control for confounding factors in analysing the associations?
e.g. stratification / matching / restriction / adjustment

No - Score 0

Yes - Score 1

Not applicable - Score 1

QAS5. Do you have any concerns about the statistical methods used?

No - Score 1

Yes - Score 0
Please specify

QAS6. Was follow-up long enough for the outcomes to occur?

No - Score 0

Yes - Score 1

Not applicable - Score 1

QAS7. What is the overall grade of the study?

0-2 = LOW QUALITY

3-4 = MEDIUM QUALITY

5-7 = HIGH QUALITY

Score out of 7

QAS8. Overall how relevant is the study for this review?
Please assess the relevance of the study checking answers to the following questions
aims; actual sample; sampling/recruitment/consent; data collection; findings

High overall relevance

Medium overall relevance

Low overall relevance

II. Quality Assessment (Qualitative) = QAQ

QAQ1. Were steps taken to strengthen rigour in the sampling?
Consider your answer from sampling strategy questions:

Consider whether:

- *the sampling strategy was appropriate to the questions posed in the study (e.g. was the strategy well-reasoned and justified)*

- *attempts were made to obtain a diverse sample of the population in question (think about who might have been excluded who might have had a different perspective to offer).*

- *characteristics of the sample critical to the understanding of the study context and findings were presented (i.e. do we know who the participants were in terms of for example, basic socio-demographics, characteristics relevant to the context of the study?)*

Yes, a fairly thorough attempt was made (*Please specify*)

Yes, several steps were taken (*Please specify*)

Yes, minimal few steps were taken (*Please specify*)

Unclear (Please specify)

No, not at all / Not stated / Can't tell (*Please specify*)

QAQ2. Were steps taken to strengthen rigour in the data collected?
Consider whether:

- *data collection was comprehensive, flexible and/or sensitive enough to provide a complete and/or vivid and rich description of people's perspectives and experiences (e.g. did the researchers spend sufficient time at the site/ with participants? did they keep 'following up'? Was more than one method of data collection used?*

- *Steps were taken to ensure that all participants were able and willing to contribute (e.g. processes for consent see data collection questions, language barriers, power relations between adults and children/ young people.*

Yes, a fairly thorough attempt was made (*Please specify*)

Yes several steps were taken (*Please specify*)

Yes, minimal few steps were taken (*Please specify*)

Unclear (*Please specify*)

No, not at all / Not stated / Can't tell (*Please specify*)

QAQ3. Were steps taken to strengthen the rigour of the analysis of data?
Consider whether:

- *data analysis methods were systematic (e.g. was a method described/ can a method be discerned?*

- *diversity in perspective was explored*

- *The analysis was balanced in the extent to which it was guided by preconceptions or by the data*

- *quality analysis in terms of inter-rater reliability/agreement*

- *the analysis sought to rule out alternative explanations for findings (in qualitative research this could be done by, for example, searching for negative cases/ exceptions, feeding back preliminary results to participants, asking a colleague to review the data, or reflexivity*

Yes, a fairly thorough attempt was made (*Please specify*)

Yes, several steps were taken (*Please specify*)

Yes, minimal steps were taken (*Please specify*)

Unclear (*Please specify*)

No, not at all / Not stated / Can't tell (*Please specify*)

QAQ4. Were the findings of the study grounded in / supported by the data?
Consider whether:

- *enough data are presented to show how the authors arrived at their findings*

- *the data presented fit the interpretation/ support the claims about patterns in data*

- *the data presented illuminate/ illustrate the findings*

- *quotes are numbered or otherwise identified and the reader can see they don't come from one or two people.*

Well grounded/supported (*Please specify*)

Fairly well grounded/supported (*Please specify*)

Limited grounding/support (*Please specify*)

QAQ5. Please rate the findings of the study in terms of their breadth and depth
Consider whether:

(NB it may be helpful to consider 'breadth' as the extent of description and 'depth' as the extent to which data has been transformed/ analysed)

- *A range of issues are covered*

- *The perspectives of participants are fully explored in terms of breadth (contrast of two or more perspectives) and depth (insight into a single perspective)*

- *richness and complexity has been portrayed (e.g. variation explained, meanings illuminated)*

- *There has been theoretical/ conceptual development*

Good/fair breadth, but little depth

Good/fair depth but very little breadth

Good/fair breadth and depth

Limited breadth and depth

QAQ6. Privileges patient perspectives/experiences?
Consider whether:

- *there was a balance between open-ended and fixed response questions*

- *whether children were involved in designing the research*

- *there was a balance between the use of an a priori coding framework and induction in the analysis*

- *the position of the researchers (did they consider it important to listen to the perspectives of children?)*

- *steps were taken to assure confidentiality and put people at ease*

Not at all *(Please specify)*

A little *(Please specify)*

Somewhat *(Please specify)*

A lot *(Please specify)*

QAQ7. Reliability
Guidance: Think (mainly) about the answers you have given to questions above
Using the ratings score 3 for top answer, 2 for middle answer, and 1 for bottom answer, 0 for no answer

11-15 = high

6-10 = medium

0-5 = low

Low reliability

Medium reliability

High reliability

QAQ8 - Overall how relevant is the study for this review?
Please assess the relevance of the study checking answers to the following questions
aims; actual sample; sampling/recruitment/consent; data collection; findings

High overall relevance

Medium overall relevance

Low overall relevance

QAQ9. Usefulness
Guidance: Think (mainly) about the answers you have given to questions 4-6 above and consider:

- *the match between the study aims and findings and the aims and purpose of the synthesis and*

- *its conceptual depth/ explanatory power*

Low usefulness

Medium usefulness

High usefulness

Appendix 7: Details of systematic reviews

Study	Country	Number and type of studies	Intervention type	Target population	Health behaviour / Condition	Setting and size of business	Outcomes
Abraham and Graham-Rowe (2009)	OECD only	**Number of studies** 31-40 **Primary study design** Trials/outcome evaluations	Exercise programme	None	**Health behaviour** • Skill development • Physical activity **Health condition** Physical/general health	**Setting focus** Workplace setting only **Size of business** Not stated	**Health** • Behaviour • Clinical/ physical health **Business** None measured
Anderson et al. (2009)	International /not stated	**Number of studies** 41-50 **Primary study design** Trials/outcome evaluations	Education Environmental modification Skill development	None	**Health behaviour** Restricted calorie intake **Health condition** • Obesity/overweight • Other	**Setting focus** Workplace setting only **Size of business** •Not stated	**Health** • Behaviour • Clinical/ physical health
Aniol (2001)	International /not stated	**Number of studies** 1-10 **Primary study design** Trials/outcome evaluations	Counselling Other	None	**Health behaviour** Smoking **Health condition** Not stated/unclear	**Setting focus** Workplace setting is one amongst a number of settings	**Health** Behaviour **Business** •Absenteeism/sick leave

Study	Country	Number and type of studies	Intervention type	Target population	Health behaviour / Condition	Setting and size of business	Outcomes
						Size of business Not stated	
Archer et al. (2011)	International /not stated	**Number of studies** >50 **Primary study design** Mixed methods	Education Exercise programme Incentives/prize/lottery Other 'behavioural practices' Multi-component (not otherwise specified)	None	**Health behaviour** Restricted calorie intake **Health condition** Obesity/overweight	**Setting focus** Workplace setting only **Size of business** Not stated	**Health** Clinical/ physical health
Baicker et al. (2010)	International /not stated	**Number of studies** 31-40 **Primary study design** Trials/outcome evaluations	Counselling Education Incentives/prize/lottery Risk/needs assessment Screening/testing	None	**Health behaviour** • Alcohol use • Smoking • Stress management **Health condition** •Cardiovascular disease • Mental ill health (anxiety, depression, suicide) •Musculoskeletal condition •Obesity/overweight •Physical/general	**Setting focus** •Workplace setting only **Size of business** • Large (<1000 employees) • Enterprise (>1000 employees) • Other	**Health** • Not stated/unclear **Business** •Absenteeism/sick leave • Financial impact

Study	Country	Number and type of studies	Intervention type	Target population	Health behaviour / Condition	Setting and size of business	Outcomes
					health • Wellbeing		
Cahill et al. (2008)	International /not stated	**Number of studies** >50 **Primary study design** Trials/outcome evaluations	Advice Counselling Education Environmental modification/change in work environment Group therapy Incentives/prize/lottery Screening/testing Social support Multi-component (not otherwise specified)	Age group	**Health behaviour** Smoking **Health condition** Not stated/unclear	**Setting focus** Workplace setting only **Size of business** Not stated	**Health** • Behaviour. • Clinical/ physical health **Business** •Absenteeism/sick leave • Financial impact
Conn et al. (2009)	International /not stated	**Number of studies** Not stated **Primary study design** Mixed methods	Exercise programme	SES	**Health behaviour** Physical activity **Health condition** • Diabetes •Obesity/overweight •Physical/general health	**Setting focus** Workplace setting only **Size of business** • Medium (<250 employees)	**Health** • Behaviour • Clinical/ physical health • Mental health • Wellbeing **Business** •Absenteeism/sick

Study	Country	Number and type of studies	Intervention type	Target population	Health behaviour / Condition	Setting and size of business	Outcomes
					• Wellbeing	• Large (<1000 employees)	leave • Other
Dishman et al. (1998)	International /not stated	**Number of studies** 21-30 **Primary study design** Trials/outcome evaluations	Education Environmental modification/change in work environment Exercise programme Incentives/prize/lottery Screening/testing	None	**Health behaviour** Physical activity **Health condition** Not stated/unclear	**Setting focus** Workplace setting only **Size of business** Not stated	**Health** • Behaviour • Clinical/ physical health **Business** None measured
Hutchinson and Wilson (2012)	International /not stated	**Number of studies** 31-40 **Primary study design** Trials/outcome evaluations	Education Exercise programme Other	None	**Health behaviour** • Healthy eating/nutrition • Physical activity **Health condition** •Physical/general health	**Setting focus** Workplace setting only **Size of business** Not stated	**Health** • Behaviour • Clinical/ physical health **Business** None measured
Kremers et al. (2010)	International /not stated	**Number of studies** 41-50 **Primary study design** Mixed methods	Education Exercise programme Social support	Age group Gender mix Ethnicity Other	**Health behaviour** Healthy eating/nutrition **Health condition** • Cardiovascular	**Setting focus** Workplace setting **Size of business** Not stated	**Health** • Behaviour • Clinical/ physical health **Business** None measured

Study	Country	Number and type of studies	Intervention type	Target population	Health behaviour / Condition	Setting and size of business	Outcomes
					disease • Obesity/overweight		
Kuoppala et al. (2008)	International /not stated	**Number of studies** 41-50 **Primary study design** •Trials/outcome evaluations • Observational studies	Education Exercise programme Multi-component (not otherwise specified)	None	**Health behaviour** Not stated/unclear **Health condition** Wellbeing	**Setting focus** Workplace setting only **Size of business** Not stated	**Health** • Mental health • Wellbeing **Business** •Absenteeism/sick leave
Leeks et al. (2010)	International /not stated	**Number of studies** 11-20 **Primary study design** Trials/outcome evaluations	Advice Education Group therapy Incentives/prize/lottery Social support Multi-component (not otherwise specified)	None	**Health behaviour** Smoking **Health condition** Not stated/unclear	**Setting focus** Workplace setting only **Size of business** Medium (<250 employees)	**Health** • Behaviour • Clinical/ physical health **Business** • Productivity • Financial impact
Martin et al. (2009)	International /not stated	**Number of studies** 21-30 **Primary study design**	Advice Counselling Education	None	**Health behaviour** • Alcohol use • Smoking • Stress management	**Setting focus** Workplace setting only	**Health** Mental health

Study	Country	Number and type of studies	Intervention type	Target population	Health behaviour / Condition	Setting and size of business	Outcomes
		Trials/outcome evaluations	Exercise programme Other Multi-component (not otherwise specified)		**Health condition** Mental ill health (anxiety, depression, suicide)	**Size of business** Not stated	**Business** None measured
McLeod (2010)	International /not stated	**Number of studies** Not stated **Primary study design** •Trials/outcome evaluations • Qualitative studies • Observational studies	Counselling	None	**Health behaviour** Stress management **Health condition** Mental ill health (anxiety, depression, suicide),	**Setting focus** Workplace setting is one amongst a number of settings **Size of business** Not stated	**Health** Mental health **Business** •Absenteeism/sick leave • Financial impact • Job satisfaction
Montano et al. (2014b)	International/ not stated	**Number of studies** 31-40 **Primary study design** Trials/outcome evaluations	Counselling Education Environmental modification/change in work environment Exercise programme Legislation/regulation Medical/assistive device	SES	**Health behaviour** • Healthy eating/nutrition • Physical activity • Stress management **Health condition** Not stated/unclear	**Setting focus** Workplace setting only **Size of business** Not stated	**Health** • Behaviour • Clinical/ physical health • Mental health **Business** •None measured

Study	Country	Number and type of studies	Intervention type	Target population	Health behaviour / Condition	Setting and size of business	Outcomes
			Resource/service access\n\nScreening/testing\n\nSkill development\n\nSocial support				
Ojo et al. (2011)	International /not stated	**Number of studies** 1-10\n\n**Primary study design** Trials/outcome evaluations	Counselling\n\nEducation\n\nScreening/testing	Age group\n\nGender mix\n\nStaff categories	**Health behaviour** Sexual risk\n\n**Health condition** Other	**Setting focus** Workplace setting only\n\n**Size of business** Not stated	**Health** • Behaviour • Clinical/ physical health • Other\n\n**Business** •None measured
Parks and Steelman (2008)	International/ not stated	**Number of studies** 11-20\n\n**Primary study design** •Trials/outcome evaluations • Observational studies • Mixed methods	Education\n\nExercise programme\n\nMulti-component (not otherwise specified)	None	**Health behaviour** Not stated/unclear\n\n**Health condition** Not stated/unclear	**Setting focus** Workplace setting only\n\n**Size of business** Not stated	**Health** None measured\n\n**Business** •Absenteeism/sick leave • Job satisfaction

Study	Country	Number and type of studies	Intervention type	Target population	Health behaviour / Condition	Setting and size of business	Outcomes
Richardson and Rothstein (2008)	International /not stated	**Number of studies** 31-40 **Primary study design** Trials/outcome evaluations	Counselling Group therapy Skill development Social support Other	None	**Health behaviour** Stress management **Health condition** Mental ill health (anxiety, depression, suicide)	**Setting focus** Workplace setting only **Size of business** Not stated	**Health** • Clinical/ physical health • Mental health **Business** •Absenteeism/sick leave • Productivity
Rongen et al. (2013)	International /not stated	**Number of studies** 11-20 **Primary study design** Trials/outcome evaluations	Advice Counselling Education Exercise programme Group therapy Incentives/prize/lottery Medical/assistive device	None	**Health behaviour** • Healthy eating/nutrition • Physical activity • Restricted calorie intake **Health condition** Obesity/overweight	**Setting focus** Workplace setting only **Size of business** Not stated	**Health** Clinical/physical health **Business** •Absenteeism/sick leave • Productivity
Smedslund et al. (2004)	International /not stated	**Number of studies** 11-20 **Primary study design** Trials/outcome evaluations	Education Group therapy Incentives/prize/lottery Medical/assistive device Social support	Other	**Health behaviour** Smoking **Health condition** Not stated/unclear	**Setting focus** Workplace setting only **Size of business** • Small (<50 employees)	**Health** Behaviour **Business** None measured

Study	Country	Number and type of studies	Intervention type	Target population	Health behaviour / Condition	Setting and size of business	Outcomes
			Other			• Medium (<250 employees) • Large (<1000)	
Tan et al. (2014)	International /not stated	**Number of studies** 1-10 **Primary study design** Trials/outcome evaluations	Counselling Education Exercise programme Skill	None	**Health behaviour** Not stated/unclear **Health condition** Mental ill health (anxiety, depression, suicide)	**Setting focus** Workplace setting only **Size of business** Medium (<250 employees)	**Health** Mental health **Business** None measured
Thomson and Ravia (2001)	US only	**Number of studies** 31-40 **Primary study design** Trials/outcome evaluations	Advice Counselling Education Environmental modification/Change in work environment Social support 'peer mentoring'	None	**Health behaviour** Healthy eating/ nutrition **Health condition** • Cardiovascular disease • Cancer • Other • Immune response in rheumatoid arthritis	**Setting focus** Workplace setting only **Size of business** not stated	**Health** Behaviour
van Dongen et al. (2011)	OECD only	**Number of studies** 11-20	Education	None	**Health behaviour** • Healthy eating/nutrition	**Setting focus** Workplace setting only	**Health** Not stated/unclear

Study	Country	Number and type of studies	Intervention type	Target population	Health behaviour / Condition	Setting and size of business	Outcomes
		Primary study design Trials/outcome evaluations	Exercise programme Incentives/prize/lottery Multi-component		• Physical activity **Health condition** Not stated/unclear	Size of business Not stated	**Business** •Absenteeism/sick leave • Productivity • Financial impact
Verweij et al. (2011)	OECD only	Number of studies 41-50 **Primary study design** Trials/outcome evaluations	Advice Counselling Education Environmental modification/change in work environment Exercise programme Incentives/prize/lottery Screening/testing Other	None	**Health behaviour** • Healthy eating/nutrition • Physical activity **Health condition** Obesity/overweight	**Setting focus** Workplace setting only **Size of business** Not stated	**Health** Clinical/ physical health **Business** None measured

Appendix 8: Direction of effect for health and business outcomes

Table A8.1: Direction of effect for all health and business outcomes

Review	AMSTAR rating	++	+	0	-	--
Abraham and Graham-Rowe (2009)	4	Physical activity; Physical fitness				
Anderson et al. (2009)	10	BMI; Weight				
Aniol (2001)	5	**Absenteeism**; Smoking cessation				
Archer et al. (2011)	10	Weight				
Baicker et al. (2010)	4		Absenteeism costs; Saving per employee			
Cahill et al. (2008)	9	Smoking cessation	Smoking cessation			
Conn et al. (2009)	7	**Absenteeism**; Anthropometric measures; Diabetes risk; Fitness; Healthcare utilisation; **Job Stress**; Lipids	Mood; Quality of life			
Dishman et al. (1998)	5		Physical activity			

Review	AMSTAR rating	++	+	0	-	--
Hutchinson and Wilson (2012)	4	Activity; Cholesterol; Diastolic BP; Fat intake; Fitness; Fruit intake; Vegetable intake; Weight		Cholesterol		Weight
Kremers et al. (2010)	7	Weight				
Kuoppala et al. (2008)	7	Work ability	**Absenteeism**; Mental wellbeing; Physical wellbeing; Wellbeing; **Work ability**			
Leeks et al. (2010)	9		Smoking cessation			
Martin et al. (2009)	8	Anxiety; Depression	Mental health			
McLeod (2010)	6		Psychological outcomes			
Montano et al. (2014b)	9	BMI; **Job stress**; Musculoskeletal symptoms; Fruit and vegetable intake				
Ojo et al. (2011)		Self-reported STD; Sex with a commercial sex worker; Unprotected sex; Voluntary counselling and testing	Alcohol before sex; Multiple sexual partners		HIV incidence	

Review	AMSTAR rating	++	+	0	-	--
Parks and Steelman (2008)	10	Absenteeism; Job satisfaction				
Richardson and Rothstein (2008)	6	Psychological outcome				
Rongen et al. (2013)	10	Absenteeism; Health; Productivity	Work ability			
Smedslund et al. (2004)	9	Smoking cessation				
Tan et al. (2014)	10	Depression				
Thomson and Ravia (2001)	9		Fruit and vegetable intake			
van Dongen et al. (2011)	9	Absenteeism costs; Medical costs				Absenteeism costs; Medical costs
Verweij et al. (2011)	10	BMI, Body fat percentage; Weight	Body fat percentage			
++ statistically significant beneficial effect; + non-significant beneficial effect; 0 no difference between control and intervention; - non-significant detrimental effect; -- statistically significant detrimental effect; business outcomes in bold.						

Table A8.2: Direction of effect for different intervention types

Review	AMSTAR rating	++	+	0	-	--
Abraham and Graham-Rowe (2009)	4	Exercise				
Aniol (2001)	5	Mental health interventions				
Anderson et al. (2009)	10	Nutrition and/or PA				
Archer et al. (2011)	10	PA; Education; Access to healthy food; Environmental change; Exercise prescription; Competitions and incentives; Multicomponent				
Baicker et al. (2010)	4		Health risk assessment; Self-help education materials; Individual counselling; Classes, seminars, group activities; Added incentives for participation			
Cahill et al. (2008)	9	Group therapy; Individual counselling; Pharmacological interventions; Incentives; Multicomponent	Self-help interventions			

Review	AMSTAR rating	++	+	0	-	--
Conn et al. (2009)	7	PA interventions	PA interventions			
Dishman et al. (1998)	5		Exercise			
Hutchinson and Wilson (2012)	4	Education; Cognitive-behavioural; Exercise; Motivation enhancement; Social influence		Education		Education; Cognitive-behavioural; Motivation enhancement
Kremers et al. (2010)	7	Diet and PA; Diet alone; PA alone				
Kuoppala et al. (2008)	7	Education; Ergonomics; PA; Lifestyle; Psychological; Work redesign	Education; Ergonomics; PA; Lifestyle; Psychological; Work redesign			
Leeks et al. (2010)	9		Incentives and competitions			
Martin et al. (2009)	8	Psychoeducation focused on cognitive behaviour or training in coping skills for stress management; PA	Psychoeducation focused on cognitive behaviour or training in coping skills for stress management; PA			
McLeod (2010)	6		Counselling			
Montano et al. (2014b)	9	Cognitive behavioural; Ergonomics;				

Review	AMSTAR rating	++	+	0	-	--
		Education; PA; Stress management; Multicomponent				
Ojo et al. (2011)		Advice, Education; Voluntary counselling and testing; Peer education	Voluntary counselling and testing; Education		Voluntary counselling and testing	
Parks and Steelman (2008)	10	Education; Exercise; Multicomponent				
Richardson and Rothstein (2008)	6	Cognitive-behavioural; Multi-component; Relaxation; Miscellaneous (exercise, EMG feedback, journalling, skills development, classroom management training for teachers)	Social support			
Rongen et al. (2013)	10	Advice; Counselling; Education; Exercise; Incentives; Stress management; Multicomponent	Advice; Counselling; Education; Exercise; Incentives; Stress management; Multicomponent			
Smedslund et al. (2004)	9	Self-help manuals; Physician advice, Health education, Cessation groups,				

Review	AMSTAR rating	++	+	0	-	--
		Incentives; Competitions				
Tan et al. (2014)	10	Cognitive behavioural therapy; Education; Exercise; Skill development; Social support	Cognitive behavioural therapy			
Thomson and Ravia (2001)	9		Counselling; Diet feedback; Education; Environmental change; Peer mentoring			
Van Dongen et al. (2011)	9	Nutrition and/or physical activity; Multicomponent				Nutrition and/or PA; Multicomponent
Verweij et al. (2011)	10	PA and dietary behaviour interventions (Advice; Education; Feedback; Incentives; PA; Screening; Counselling; Multicomponent)	PA and dietary behaviour interventions (Advice; Education; Feedback; Incentives; PA; Screening; Counselling; Multicomponent)			
++ statistically significant beneficial effect; + non-significant beneficial effect; 0 no difference between control and intervention; - non-significant detrimental effect; -- statistically significant detrimental effect; PA physical activity						

Appendix 9: Characteristics of views studies

Study	Study aims/data collection methods	Characteristics	Factors influencing study participants' views of workplace health intervention	Quality Assessment
Bardus et al. (2014) Reasons for participating and not participating in a e-health workplace physical activity intervention	**Aim:** To investigate employees' reasons for participating and not participating in an actual e-health workplace PA intervention offered across 17 UK worksites. **Method:** Interviews and focus groups.	**Country:** UK **Sample size: N** = 62 **Health condition:** Not stated **Health behaviour:** Physical activity **Targeted population:** No **Size of business:** Small (<50), Medium (<250) and Large (<1000) **Type of business:** Manufacturing, Information and communication, Financial and insurance, Public administration, Education **Views accessed:** Employees **Number of workplaces:** Multiple workplaces across 17 UK sites **Number of worksites:** Not stated	Acceptability Accessibility Managerial support Ease of delivery Structures promote social support Intervention type: internet/web/PC/text Intervention type: incentives	**Reliability:** High **Overall relevance:** High **Overall usefulness of study:** High
Blake et al. (2013) Five-year workplace wellness intervention in the NHS	**Aim:** To deliver and evaluate a five-year employee wellness programme aimed at improving the health and wellbeing of employees in a large NHS workplace.	**Country:** UK **Sample size: N**= 1,452 at baseline; N=1,134 at follow up **Health condition:** Wellbeing **Health behaviour:** Physical activity **Targeted population:** No	Acceptability Accessibility Ease of delivery	**Reliability:** Medium **Overall relevance:** High **Overall usefulness of study:** Medium

Study	Study aims/data collection methods	Characteristics	Factors influencing study participants' views of workplace health intervention	Quality Assessment
	Method: Survey.	**Size of business**: Not stated **Type of business**: NHS **Participant's views accessed**: Employees **Number of workplaces**: Single **Number of worksites**: Multiple		
Dolan et al. (2005) 'You ain't going to say … I've got a problem down there': Work-place-based prostate health promotion with men	**Aim**: A small-scale qualitative study that explored men's perceptions and experiences of three different workplace-based health promotion interventions to improve prostate health awareness and their attitudes towards the workplace as an appropriate setting for promoting men's health. **Methods**: Interviews, focus groups and surveys	**Country**: UK Sample size: N= 30 **Health condition**: Cancer **Health behaviour**: Not stated **Targeted population**: Men **Size of business**: Enterprise (>1000) **Type of business**: Consignia UK (used to be Royal Mail) **Participant's views accessed**: Employees, managers, intervention providers, union representatives **Number of workplaces**: Single **Number of worksites**: Multiple	Acceptability Accessibility Channels of communication Deliverer: approach Deliverer: job position Intervention type: advice Intervention type: content (health checks being incorporated into work-time learning) Intervention type: targeted Intervention type: uptake/exposure Other barriers and facilitators: (peers as facilitators of intervention) Organisational support Scheduling workplace health activities	**Reliability**: Medium **Overall relevance**: High **Overall usefulness of study**: Medium

Study	Study aims/data collection methods	Characteristics	Factors influencing study participants' views of workplace health intervention	Quality Assessment
Edmunds et al. (2013) Physical activity barriers in the workplace: An exploration of factors contributing to non-participation in a UK workplace physical activity intervention	**Aim:** To explore factors contributing to non-participation in a workplace physical activity intervention in a large UK call centre. **Method:** Interviews	**Country:** UK, London **Sample size:** N= 16 **Health condition:** Not stated **Health behaviour:** Physical activity **Targeted population:** Intervention non-participants **Size of business:** Large (<1000) **Type of business:** Other: call centre **Participant's views accessed:** Employees. **Number of workplaces:** Single **Number of worksites:** Single	Acceptability Accessibility Ease of delivery Intervention type: content Intervention type: tailored Intervention type: physical activity Managerial support Scheduling workplace health activities Structures promote social support	**Reliability:** High **Overall relevance:** Medium **Overall usefulness of study:** Medium

Study	Study aims/data collection methods	Characteristics	Factors influencing study participants' views of workplace health intervention	Quality Assessment
Gibson (2014)\n\nProgress towards healthy ageing in Europe: To promote active healthy life-styles in 45-68 year olds through work-place, rather than traditional health-related settings	**Aim:** A two-year project which aims to improve the health and wellbeing of individuals by encouraging healthy and active ageing in 45 to 68 year olds through workplace health promotion interventions.\n\n**Method:** Focus groups.	**Country:** UK, Suffolk\n\n**Sample size:** N= 10\n\n**Health condition:** Wellbeing\n\n**Health behaviour:** Not stated\n\n**Targeted population:** Age group 45-68\n\n**Size of business:** Not stated\n\n**Type of business:** Public administration\n\n**Participant's views accessed:** Employees\n\n**Number of workplaces:** Single\n\n**Number of worksites:** Multiple	Acceptability\n\nEase of delivery\n\nIntervention type: advice\n\nIntervention type: internet/web/PC/text\n\nIntervention type: tailored\n\nIntervention type: wellbeing/ mood states\n\nPolicy integration of workplace health\n\nStructures promote social support	**Reliability:** Low\n\n**Overall relevance:** Medium\n\n**Overall usefulness of study:** Medium
Lomas and McCluskey (2005)\n\nPumping up the pressure: A qualitative evaluation of a workplace health	**Aim:** To evaluate the effectiveness of a workplace health promotion initiative. Blood pressure screening was taken into the workplace setting for all staff	**Country:** UK\n\n**Sample size:** N= 14\n\n**Health condition:** Cardiovascular disease\n\n**Health behaviour:** Other (blood pressure screening)\n\n**Targeted population:** Men	Acceptability\n\nAccessibility\n\nEase of delivery\n\nDeliverer: qualification\n\nDeliverer: job position\n\nIntervention type: uptake	**Reliability:** Medium\n\n**Overall relevance:** High\n\n**Overall usefulness of study:** High

Study	Study aims/data collection methods	Characteristics	Factors influencing study participants' views of workplace health intervention	Quality Assessment
promotion initiative for male employees	members who wished to take part. **Method**: Interviews.	**Size of business**: Not stated **Type of business**: NHS **Participant's views accessed**: Employees **Number of workplaces**: Single **Number of worksites**: Multiple	Intervention type: other Managerial support	
Mellor and Webster (2013) Enablers and challenges in implementing a comprehensive workplace health and well-being approach	**Aim**: 'To uncover the enablers and challenges encountered in the implementation of a wellbeing management approach with a particular focus on line managers' role in such an initiative.' **Method**: Interviews and focus groups.	**Country**: UK Sample size: N= 20 **Health condition**: Wellbeing **Health behaviour**: Not stated **Targeted population**: No **Size of business**: Large (<1000) **Type of business**: Public sector (not defined) **Participant's views accessed**: Employees, managers and union representatives. **Number of workplaces**: Single **Number of worksites**: Single	Acceptability Channels of communication Ease of delivery Engagement: managerial Engagement: workforce Financial commitment Deliverer approach Intervention type: targeted Intervention type: internet/web/PC/text Intervention type: tailored (carrying out own team surveys) Managerial support Organisational support Policy: integrated into existing health, safety, wellbeing initiative Other: culture change	**Reliability**: Medium **Overall relevance**: Medium **Overall usefulness of study**: Medium

Study	Study aims/data collection methods	Characteristics	Factors influencing study participants' views of workplace health intervention	Quality Assessment
Procter et al. (2014) Views and experiences of behaviour change techniques to encourage walking to work: a qualitative study	**Aim:** The Walk to Work study was to test the feasibility of an employer-led scheme to encourage walking to work. **Method:** Interviews.	**Country:** UK, Southwest England. **Sample size:** N= 22 **Health condition:** Physical and general health. **Health behaviour:** Physical activity **Targeted population:** No **Size of business:** Small (<50), Medium (<250) and Large (<1000) **Type of business:** Financial and insurance, professional, scientific and technical activities and public administration **Participant's views accessed:** Employees and intervention providers **Number of workplaces:** Multiple **Number of worksites:** Multiple	Acceptability Accessibility Ease of delivery Deliverer: sufficient time for delivery Deliverer: job position Deliverer: approach Intervention type: advice Intervention type: duration or dose Intervention type: environmental changes Intervention type: incentives Intervention type: internet/web/PC/text Intervention type: content Intervention type: tailored Managerial support Structures promote social support	**Reliability:** High **Overall relevance:** High **Overall usefulness of study:** High
Robinson et al. (2014) Championing mental health at work: emerging practice from innovative	**Aim:** To assess the value of participatory approaches within interventions aimed at promoting mental health and wellbeing in the workplace. **Method:** Interviews.	**Country:** UK, Yorkshire and the Humber region: Doncaster, Wakefield, Rotherham **Sample size:** N= 21 **Health condition:** Mental ill health and wellbeing **Health behaviour:** Not stated	Acceptability Channels of communication Engagement: managerial Engagement: workforce Financial commitment Deliverer: job position	**Reliability:** Medium **Overall relevance:** Medium **Overall usefulness of study:** Medium

Study	Study aims/data collection methods	Characteristics	Factors influencing study participants' views of workplace health intervention	Quality Assessment
projects in the UK		**Targeted population**: Employers within neighbourhoods with the highest risk of poor health **Size of business**: Small (<50), Medium (<250) and Large (<1000) **Type of business**: Not stated **Participant's views accessed**: Employees, managers and intervention providers **Number of workplaces**: Multiple **Number of worksites**: Multiple	Deliverer: approach Intervention type: multicomponent Intervention type: tailored Managerial support Organisational support Policy of continuous improvement Structures to promote social support	
White et al. (2008) Targeting men's weight in the workplace	**Aim**: This study followed a group of men as they went through a programme of weight-loss sessions run by the Health of Men team within the workplace community-based services. **Method**: Interviews and Other (observation of sessions)	**Country**: UK, Bradford and Airedale **Sample size**: N= 10 **Health condition**: Obesity/overweight **Health behaviour**: Healthy eating/nutrition and physical activity **Targeted population**: Men **Size of business**: Not stated **Type of business**: Administrative and support service activities	Acceptability Accessibility Financial commitment Deliverer: qualification Deliverer: approach Intervention type: duration or dose Intervention type: weight/dietary habits Intervention type: tailored Intervention type: content Managerial support Structures to promote social support	**Reliability**: Medium **Overall relevance**: High **Overall usefulness of study**: High

Study	Study aims/data collection methods	Characteristics	Factors influencing study participants' views of workplace health intervention	Quality Assessment
		Participant's views accessed: Employees and intervention providers **Number of workplaces:** Single **Number of worksites:** Single		

Appendix 10: Characteristics of policy documents

Policy document details			
Count ry	Type of authoring organisation	Basis of recommendations	Themes covered
ACAS (2012) *Health, working and wellbeing.* London: ACAS. http://www.acas.org.uk/media/pdf/3/t/Health-work-and-wellbeing-accessible-version.pdf (accessed 23 May 2016)			
UK	Statutory body	Not stated	**Recommendations to organisations**: develop a health and wellbeing strategy
Australian Capital Territory, Occupational Health and Safety Commission (n.d.) *A guide to promoting health and wellbeing in the workplace* http://www.10000stepsaustralia.com/getfile/PDFs%20Public/A%20Guide%20to%20Promoting%20HealthWellbeing%20in%20the%20Workplace.pdf (accessed 23 May 2016)			
Austra lia	Statutory body	Not stated	**Recommendations to organisations**: develop a health and wellbeing strategy; evaluate the programme
Bajorek, Shreeve V, Bevan S, Taskila T (2014) *The way forward: policy options for improving workforce health in the UK.* London: The Work Foundation http://www.theworkfoundation.com/DownloadPublication/Report/372_The%20Way%20Forward%20FINAL.pdf (accessed 23 May 2014)			
UK	Think tank	Primary research Secondary research	**Barriers to workplace health promotion**: barriers at planning, evaluation and implementation stages **Recommendations to organisations**: develop a health and wellbeing strategy; invest in evidence-based interventions; corporate reporting; evaluate the programme **Recommendations to government**: tax incentives; levy systems; budget pooling; responsible procurement; regulation; benchmarking; regulation for reporting; invest in and promote evidence-based interventions; evaluate programmes
Business in the Community Workwell (2014) *Mental health: we're ready to talk.* London: Business in the Community. http://www.bitc.org.uk/sites/default/files/bitc_mental_health_were_ready_to_talk_2014.pdf (accessed 23 May 2016)			
UK	Think tank	Primary research	**Barriers to workplace health promotion**: barriers at planning stage **Recommendations to organisations**: develop a health and wellbeing strategy; invest in evidence-based interventions
Canadian Centre for Occupational Health and Safety (2009) *Workplace Health and Wellness Program: getting started.* Hamilton, ON: CCOHS.			

Policy document details			
Count ry	Type of authorin g organisat ion	Basis of recommendati ons	Themes covered
https://www.ccohs.ca/oshanswers/psychosocial/wellness_program.html (accessed 23 May 2016)			
Canad a	Statutory body	Not stated	**Recommendations to organisations**: develop a health and wellbeing strategy; invest in evidence based interventions; evaluate the programme
Institution of Occupational Safety and Health (2013) *Implementation of tax exemption for employer expenditure on health-related interventions.*			
2013			
http://www.iosh.co.uk/~/media/Documents/Books%20and%20resources/Archived%20Con sultations/Tax%20exemptions%20consultation%20160813.pdf (accessed 23 May 2016)			
UK	Professio nal body	Not stated	**Recommendations to government**: tax incentives
Mitchell, JA, Eden B, Dunn S, Cramp J, Chapman K, Jayewardene V, King L, St. George A (2011) *Healthy workplace guide*. East Sydney: Heart Foundation			
https://heartfoundation.org.au/images/uploads/main/Active_living/Healthy-workplace-guide.pdf (accessed 23 May 2016)			
Austra lia	Universit y/health organisati on	Not stated	**Recommendations to organisations**: develop a health and wellbeing strategy; evaluate the programme
National Institute for Occupational Safety and Health (2008) *Essential elements of effective workplace programs and policies for improving worker health and wellbeing.* Atlanta, GA: NIOSH.			
http://www.cdc.gov/niosh/docs/2010-140/pdfs/2010-140.pdf (accessed 23 May 2016)			
USA	Statutory body	Not stated	**Recommendations to organisations**: develop a health and wellbeing strategy; corporate reporting; evaluate the programme
National Institute for Health and Care Excellence (2007) *Workplace interventions to promote smoking cessation*. London: NICE.			
https://www.nice.org.uk/guidance/ph5/resources/smoking-workplace-interventions-55455836101 (accessed 23 May 2016)			
UK	Statutory body/hea lth organisati on	Primary research Secondary research	**Recommendations to organisations**: develop a health and wellbeing strategy: invest in evidence-based interventions
National Institute for Health and Care Excellence (2008) *Physical activity in the workplace*. London: NICE.			
https://www.nice.org.uk/guidance/ph13/resources/physical-activity-in-the-workplace-1996174861765 (accessed 23 May 2016)			
UK	Statutory body/hea lth	Primary research	**Recommendations to organisations**: develop a health and wellbeing strategy

Policy document details			
Country	Type of authoring organisation	Basis of recommendations	Themes covered
	organisation	Secondary research	

National Institute for Health and Care Excellence (2009) *Promoting mental wellbeing at work*. London: NICE.			

https://www.nice.org.uk/guidance/ph22/resources/mental-wellbeing-at-work-1996233648325 (accessed 23 May 2016)

UK	Statutory body/health organisation	Primary research / Secondary research	**Recommendations to organisations**: develop a health and wellbeing strategy; invest in evidence-based interventions

NHS Cornwall and Isles of Scilly (2012) *A guide to the Healthy Work Place Award Programme*.			

https://www.behealthyatwork.org/documents/NHS_Workplace_Health_proof3.pdf (accessed 23 May 2016)

UK	Statutory body/health organisation	Secondary research	**Recommendations to organisations**: develop a health and wellbeing strategy; evaluate the programme

PriceWaterhouseCoopers (2010) *Workplace wellness in Australia*. Sydney: PWC.			

http://www.usc.edu.au/media/3121/WorkplaceWellnessinAustralia.pdf (accessed 23 May 2016)

Australia	Private sector organisation	Primary research / Secondary research	**Barriers to workplace health promotion**: barriers at evaluation stage; at implementation stage **Recommendations to organisations**: develop a health and wellbeing strategy; invest in evidence-based interventions; evaluate the programme **Recommendations to government**: tax incentives; benchmarking; invest in and promote evidence-based interventions

Public Health England (n.d.) *The workplace wellbeing charter*. Liverpool: Health at Work.			

http://www.wellbeingcharter.org.uk/media/Dropbox/Charter%20standards.pdf (accessed 23 May 2016)

UK	Statutory body	Not stated	**Recommendations to organisations**: develop a health and wellbeing strategy

Tasmania, Department of Premier and Cabinet (n.d.) *Implementing a workplace health and wellbeing program*. Hobart: Department of Premier and Cabinet.			

http://www.dpac.tas.gov.au/__data/assets/pdf_file/0006/123855/Ministerial_Direction_23_Guidelines.pdf (accessed 23 May 2016)

Australia	Statutory body	Secondary research	**Barriers to workplace health promotion**: barriers at planning and implementation stages

Policy document details			
Count ry	Type of authoring organisation	Basis of recommendations	Themes covered
			Recommendations to organisations: develop a health and wellbeing strategy; evaluate the programme

Vaughan Jones H, Barham L (2010) *Healthy work: evidence into action*. London: BUPA.

http://www.theworkfoundation.com/assets/docs/healthy-work-evidence-into-action-report.pdf (accessed 3 May 2016)

UK	Health organisation	Secondary research	**Barriers to workplace health promotion:** barriers at planning and implementation stages
			Recommendations to organisations: develop a health and wellbeing strategy; invest in evidence-based interventions; evaluate the programme
			Recommendations to government: tax incentives; invest in and promote evidence-based interventions; evaluate programmes; set up awards to recognise excellence; subsidies; develop core indicators; develop a database of ongoing research; improve the co-ordination of government policy on workplace health; increase awareness of the workplace as a location for improving health

Vitality Institute (2014) *Investing in prevention: a national imperative*. New York: Vitality Institute.

http://thevitalityinstitute.org/site/wp-content/uploads/2014/06/Vitality_Recommendations2014.pdf (accessed 23 May 2016)

USA	Think Tank	Secondary research	**Recommendations to organisations:** corporate reporting; evaluate the programme
		Other: commission of experts and practitioners	**Recommendations to government:** tax incentives; regulation for reporting; invest in and promote evidence based interventions; evaluate programmes

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- Developing capacity for undertaking and using reviews
- Producing new and improved methods for undertaking reviews
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